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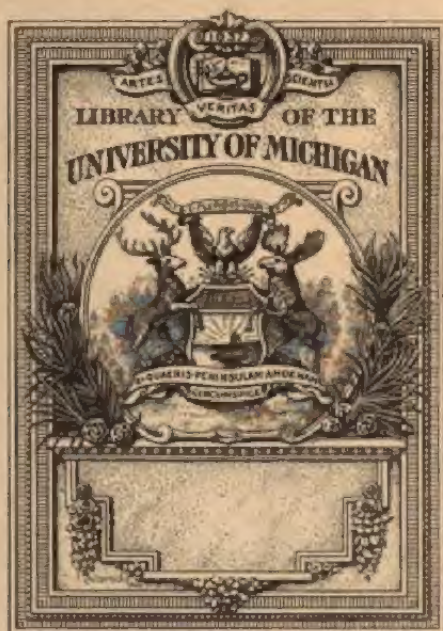
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THE
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BEING

A PRACTICAL AND ANALYTICAL DIGEST OF THE CONTENTS OF THE PRINCIPAL BRITISH AND CONTINENTAL MEDICAL WORKS PUBLISHED IN THE PRECEDING SIX MONTHS.

TOGETHER WITH

A SERIES OF CRITICAL REPORTS ON THE PROGRESS OF MEDICINE AND THE COLLATERAL SCIENCES DURING THE SAME PERIOD.

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ART. 1.—*The Meteorology of 1858.* By Mr. HINGSTON, of Brighton.

(*British Med. Journal*, March 19, 1859.)

The year 1858 was a remarkable one, both in a meteorological and sanitary point of view. There was an eclipse of the sun and moon in the spring, and a brilliant comet in the autumn; the mortality of the year was above, and the marriages and births were below the average. Indeed during the last two weeks of November, the deaths were in excess of the births; and the natural increase of the population, which has been constantly progressive for so many years past, was, during this short interval, suddenly reduced below its steady and customary ratio. The natural increase of the population for the United Kingdom in 1858 was not more than six hundred and forty-two daily. ('Quarterly Return,' 40, December 1858, p. 2; whereas it had been throughout the preceding year, 1857, as high as one thousand and twenty-one a day ('Quarterly Report,' 38, July 1858, p. 2. The last three months of the year 1858 were particularly unhealthy; and the Registrar-General declares ('Quarterly Return,' 40, p. 1, "that it has never before happened that so many deaths were registered in any autumn quarter, as in this last." The mean mortality for 1857 was less than twenty-two in a thousand ('Annual Summary' of 1857,) p. 4; but the mean mortality of 1858 was twenty-three in a thousand ('Quarterly Return,' 40, December, 1858, p. 5. The year 1858 may, therefore, be regarded as a very unhealthy one.

The year began at the usual temperature of the month of January, the first and third weeks of which were as much as from three to four degrees below the average of the season. February was cold nearly throughout. Snow fell on the 2d, and lay upon the ground; and it continued to fall occasionally till the end of the month. On the night of the 26th, there was a partial eclipse of the moon, and the thermometer sank as low as 23° Fah.; the frost was severe, and the ice two inches thick. March was still colder than February, and the temperature of the first fortnight was as much as 8° Fah. below the average. Snow fell, and lay upon the ground, from the 1st to the 6th of the month. The frost then gave way to a partial thaw, with hail, rain, and sleet, followed by a heavy snow-storm; and the ground was again white from the 14th to the 15th. This hard weather again ended in hail, rain, and sleet, and finally in a complete thaw. On the 15th, there was an almost total eclipse of the sun at 1.10 o'clock, P.M. Previous to the eclipse, the electricity had been positive, and the weather cold, but subsequently it became negative, and the air warm, the temperature averaging about 3° in excess. The mean reading of the barometer throughout the first three months of the year was nearly half an inch in excess, and for the first fortnight after the eclipse, it stood above

thirty inches, and, on the 22d, rose as high as 30.422 inches. April and May were both of them cold, perhaps about 1° lower than the average; but June was hot throughout, and was said to be hotter than any month of June since 1771, except the June of 1846. The barometer stood unusually high, being scarcely less than thirty inches all the month. The weather was bright and pleasant. July was cold, and it was in the middle of the month about 5° in defect. August was fine, and September warm, and at one time 4° in excess. The air was remarkably dry, clear, and luminous. The harvest began early. Wheat was cut on July 17th, or nearly three weeks earlier than usual, although the yield of corn was not so very great. There were severe thunder-storms in July and August; and the aurora was seen at Liverpool on July the 16th.

A singularly brilliant comet appeared in the N. W. in September and October.

October was fine. It began with the aurora, and strong gales. A few cold fresh days excepted, it was nearly 2° above the average. November, on the contrary, was extremely cold; the mean temperature of the 23d and 24th was reported at Greenwich to have been lower than any two consecutive days in November during the last forty-five years. On the 24th, the thermometer sank 12° below the freezing point of water. The mean temperature of the month was not more than 39.6° Fah. In Paris the thermometer was 10° lower than in England, and in Austria it was reported 10° lower than that. There were heavy falls of snow in the north of Great Britain, and also in Belgium and France. At Lyons the streets were nearly blocked up with it. The same weather occurred in Italy. In England, thick mists prevailed throughout the quarter, and November was particularly remarkable for several very dark fogs. On the 15th of this month there was a severe storm of wind, that did great damage to life and property, both by sea and land; and then the weather suddenly became warmer, and was nearly 6° in excess of the season. December was likewise warm; there was thunder on the 18th; and the year closed at a temperature of 1° warmer than usual. There was a great deal of illness everywhere; and the death-rate was higher than in any autumn quarter upon record. It is very remarkable that, during this sickly period, from November 14th to December the 31st, little or no terrestrial electricity was exhibited by the electrometer, and that what little showed itself was, with the exception of December the 22d, uniformly weak and negative. At the same time, the humidity of the air was almost "plus," as it was denoted by the figures 81 or 92, complete saturation being 100. No state of atmosphere could be more adverse to health and life than this.

The wind blew from the S. W. for about two hundred days; all the rest of the year it was from the N. E., with some few exceptions from the N. W., and still fewer from the S. E. The mean horizontal force of the wind was about five hundred and fifteen miles a week, according to Whewell's anemometer, Greenwich; which is considerably stronger than in the preceding year, 1857, which averaged scarcely more than two hundred miles a week. The first week in December was the calmest of the year; and the third week in December, and the second in May, the most blustering. The vernal equinox was calm; the autumnal, tempestuous.

The amount of rainfall in the twelvemonth did not exceed eighteen inches, the annual amount being about twenty-four or twenty-seven inches. It was a dry summer; and in many parts of the country the wells were exhausted, and the pasturage burnt up. It was a good season for wall-fruit, and the orchards were very productive. "I am old enough to remember the comet of 1811, and can distinctly recollect the parched state of the ground in the autumn of that year. This summer I was in the south of France, and can bear testimony to the universal satisfaction expressed at the excellence and abundance of what is called a 'comet-vintage.'

"While travelling I noted the weather; and, in comparing notes on my return, I found that the wet and the fine days on the Continent corresponded almost exactly with those in England. Thus, the 24th of July, which was wet in London, was the same in Paris. The 28th was wet at Poitiers, and also in London. On Sunday, August 5th—a very hot day at Angoulême—the ther-

merometer stood at 100° Fah. in the sun: at Greenwich, and at Bordeaux, it was 80 in the shade. Between August 8th and 16th, I was at St. Nicolas, near Striat, in the Dordogne, while the weather, which was so hot here, was the same there; and on the 14th, as I was looking at a sketch just drawn from nature, 'a great and unusual darkness,' to quote the very words of the Greenwich reporter in the Registrar-General's Weekly Returns, under that date, p. 24, 'prevailed in at 4 P. M.; the wind changed from N. to W.; rain fell heavily; lightning was seen; and thunder frequently heard.' On the 18th of August, it was rainy at London, as well as at Bayonne; and, while we were exposed to the 'mistral,' that 'securge of the south,' at Nîmes, a strong gale was blowing from the E. at Greenwich at the same time, viz., September 23d. The aphorism, 'Cœlum, non animi, mutant qui trans mare currunt' (Hor., *l. i. ep. 18. xi. 27*), is, as far as my experience goes, just the reverse of truth.

"The inner life of the earth affects the health, happiness, and prosperity of mankind, as intimately as the external agencies of light, heat, and electricity, as well as the more dazzling meteoric phenomena, such as lightning, solar or lunar eclipses, volcanic fires, mephitic emanations, and those enigmas of astronomy, comets and carbonaceous aerolites, are supposed to do. Their noxious influence on both mind and body is ancient and proverbial. The past year is a case in point. They are electro-galvanic operations, increasing or intercepting the solar beam, the degrees of heat, and the several combinations of the air we breathe, on so extensive a scale that they cannot fail in modifying the highly sensitive nervous structure of the human frame, whose delicate machinery is set in motion by a current of chemico-vital dynamics, that excite, suspend, or abolish animal existence, at a touch as fine and decisive as it is permanent and gigantic."

ART. 2.—An instance of the Success of Sanitary Measures. By Dr. FARR.

(*Lancet*, Dec. 16, 1855.)

The operations of the Board of Health at Macclesfield have been attended with as great success and as great saving of life as at Ely. Their sixth yearly report states, that before the operations of the Board the rate of mortality in the borough was thirty-three in a thousand, while for the last five years it has been twenty-six in a thousand, so that 1015 lives have been saved. In funeral expenses alone, calculated from the returns of 232 burial clubs, £8,720 have been saved. But a larger item would accrue under the head of diminished sickness, there having been 28,420 less cases of illness; and the cost of these cases being estimated, according to the data furnished by friendly societies, at one shilling a day for twenty days, £28,420 would thus be saved. Here nothing is assumed. Again, an actual instead of an assumed contrast can be presented, with no less agreeable result in the average length of life. The average age of all who died in the first period was twenty-four years (in the adjoining rural district it was thirty-four years); in the last five years it has been twenty-seven years. Each year gains an accession, the last year's average being twenty-eight years and a half. Length of days by three years has thus been added to each inhabitant.

A few years ago, statements such as these received but little favor; indeed, many people affected to ridicule them. Now, however, such vital statistics have assumed an authority which prevents even the ignorant from questioning their real value and tendency.

All the facts are alike conclusive, and point to the same result, and any one will be as intelligible as the rest; the deaths of children under one year have decreased 10 per cent., and those under five years 46 per cent. These facts are eloquent in argument; and henceforth, if any man would prove that sanitary amelioration is fertile in health and life, and repays with interest the immediate outlay involved, he may refer to Macclesfield as a town whose history offers striking illustrations of that truth.

ART. 3.—*Life and Labor.* By Dr. RICHARDSON.*(Sanitary Review, Jan. 1859.)*

In this article Dr. Richardson considers the influence of various common occupations on health and life. The effects of sand paper making are illustrated as giving rise in the young to a modified phthisis, which is sometimes rapidly fatal. Walking-stick making and hemp and flax dressing are described as exciting bronchitis and bronchorrhoea. The Neapolitan hemp has also the peculiar property of producing a spasmodic paroxysmal attack like that produced by drying hay and by ipecacuan. Trimming manufacturers' work leads to bronchial mischief. Fur drying, by exposing the artisans to the fumes of nitrous acid and to the dust arising from dried sulphate of copper, specially leads to a number of serious evils, affecting the teeth, the digestion, and, worst of all, the organs of respiration. Cigar and snuff making, in the first instance, give rise to the peculiar toxic effects of tobacco, and afterwards to chest-disorder, ending in chronic bronchial flux and inanition. The writer of this paper suggests that a Parliamentary committee of inquiry should be organized to inquire into the subject of occupations and health. He concludes as follows:—

"When we look at diseases as a whole, we stand amazed at the varieties of type which they assume. When we classify them into groups according to their causes, we stand equally amazed at finding to how very few groups all diseases may be reduced. We find all the disease-causes out of the body and clothed in externals. Resolving the causes, there stand out some dozen poisons of communicable and reproductive power, improper dietary, variations of atmosphere, and occupations. Of all these, the last stands most invitingly for inquiry. The inquiry is of a kind to which the most rigid rules are applicable. Its results might be demonstrations, its suggested remedies simple certainties."

ART. 4 — *On the health of our Army and Navy.*

By Mr. T. SPENCER WELLS, Surgeon to the Samaritan Hospital, &c.

(Medical Times and Gazette, Jan. 22, 1859.)

"Need we remind our readers," asks Mr. Wells, in an admirable leading article in the journal of which he is the accomplished editor, "of the facts told by the Army Commissioners of the extraordinary mortality of our troops? Men picked and selected, by reason of their bodily vigor, dying in numbers far beyond the mortality of any other classes in the country, and of causes evidently in great part of a preventable kind—70 per 10,000 of the London Fire Brigade die per annum, but of the Foot Guards 204 per 10,000. Of towns, Manchester has, perhaps, the blackest lists of mortality to show; its deaths are 124 per 10,000. In all England the mortality is 92 per 10,000; but in the Infantry of the Line it is 187; in the foot Guards, 204; in the Household Cavalry, 110; and in the Dragoon Guards, 153 per 10,000.

"The Commissioners who investigated the causes of this supersabounding mortality, attributed it mainly to overcrowding and want of ventilation in barracks; but we do not think that they paid sufficient attention to some of the many other influences which, though not immediate, can scarcely fail to be strongly predisposing causes of pulmonary disease. And the misfortune which arises from their not having been duly recognized is this—that the morbid agencies referred to are apt to be too slightly regarded as predisposing causes of disease. It is certain that all diseases, no matter their nature, which produce a cachectic state of the body, are strongly predisposing causes of disease—secondary syphilis, for instance—and yet on syphilis the 'Report of the Army Sanitary Commissioners' is silent; in fact, the whole matter is there summed up in half-a-dozen lines. Neither does a perusal of the report satisfy us that drinking has not a seriously injurious influence on the soldier's bodily condition. The Commissioners may have hit on the main causes which blow these pulmonary diseases immediately into life; but they assuredly have not disproved the probability of numerous other agencies coinciding in action, though more remotely and less directly. Besides this, we do not want to know

merely what are the causes which occasion the enormous excess of mortality in the Guards beyond what is the ordinary average of the kingdom: we ought to go further, and endeavor to restrain all promoting causes of diseases. It is not enough for us to be told that these other causes do not operate upon the soldier more injuriously than upon the civilian; even if the fact were true, the implied conclusion is plainly faulty; instead of being satisfied with reducing the mortality of our troops down to a level with the general mortality of the country, we ought never to cease working in this direction until we have brought it far below the general average. With the healthiest men to deal with, and all the appliances of the kingdom to carry out our dealings with them, it becomes as evident as any fact can be, that there must be some fault in our method of handling these men, so long as the deaths among them are not on a level with the lowest average of any class of men in the kingdom. Herein, we think, the report of the Commissioners is defective; it is satisfied with too little.

"Thus, the effects of drinking on the individual may not be such as to produce immediately injurious consequences. The slow chronic changes induced by continual imbibition of alcoholic liquors make themselves clearly manifest only when the mischief thereby induced is irremediable—until organic changes have occurred; and therefore it is not easy, in a rough way, to connect drunkenness with disease. But even in its immediate influence, continual drinking must be most baneful, *by rendering the body prone at all times to take on disease, and also by rendering it less able to resist its destructive influence when in a healthy state.* When is a person more susceptible to disease than at the time when his nervous and bodily powers are depressed after a debauch? To illustrate the state to which soldiers may be thus reduced, we may mention a fact related to us some years ago by one of the medical officers in the Guards. On asking him the reason why he attended the firing exercise of his regiment when practising early in the morning in Hyde Park—and this was just before the Russian war broke out—he informed us that he had received orders to do so, because so many of the men *fainted*. Naturally enough, we inquired the meaning of such an astounding fact—of Grenadiers fainting at morning drill—and discovered that *drunk* was at the bottom of the business. The men came into their sleeping-rooms half drunk, and turned out early in the morning without breakfast, or any desire for it, and just when the reaction of depression was setting in this fainting was the consequence. Now, if men's bodies are continually brought to this condition by drink, is it not self-evident that they must be at all times peculiarly prone to take on disease—any exciting cause provoking it? In other words, would the Guards be so readily the victims of pulmonary or other constitutional disorders when exposed to bad air and wet clothes, if their vital forces were not previously depressed and impaired by the agency referred to? An answer to this the Commissioners have not given. Of the large amount of drinking which is continually going on among soldiers, especially in large towns, any one may convince himself by watching the state in which they roll into barracks at night.

"The Commissioners have also slurred over, as before mentioned, in half a dozen lines that other fact—syphilis; but who is to believe that the cachexia induced thereby, the permanent injury to the constitution so constantly resulting from it, do not operate most banefully as promoting causes of other diseases? Some idea of the amount of venereal diseases in the army may be obtained from facts stated by us last year ('Medical Times,' Feb. 13th, 1858). In 1845 the number of troops in the United Kingdom was 62,000; and among them the cases of venereal diseases were reckoned at 16,700. Are we to suppose that a disease, which affects the health of one-fourth of the whole army, and compels the subject of it to remain on an average fifteen days in hospital, can fail to be indirectly a highly predisposing cause to the invasion of other diseases? And this especially when we recollect, as above stated, that syphilis is a disease which too often leaves its mark permanently indented on the constitution. There is also evidently another injurious consequence which arises from these diseases. If one-fourth of the army is prostrated for fifteen days of

the year by venereal diseases, the other three-fourths have so much extra duty to do.

"Dr. Combe, of the Royal Artillery, who has had twelve years' experience of army diseases, tells us that chancre is more rife in the army now than it was formerly, that buboes follow it more rapidly and more frequently; and that secondary symptoms ensue in a larger number of cases. He attributes these facts mainly to the circumstance that the modern soldier is younger, and his condition inferior to that of the soldier of past years; and, therefore, that he is less able to resist the incursion of disease, and suffers more from it. Besides, he adds, that together with this diminished force of body has come a greater degree of physical labor to the individual. He admits that he has no statistics to back him; but these are the facts which have been forced upon him by his many years of experience.

"Venereal diseases have also, of late years, much increased in the navy, according to the statistical report just published by Dr. Bryson: 'The average number of cases occurring annually for fourteen years in 1000 of mean force, did not exceed 74; whereas for the present year, 1856, it is more than double the amount, namely 168.'

"Now, if our opinion in this matter be correct, and we see not how it can be contrived on any sane medical grounds, then it follows that the report of the Commissioners contains a very serious defect, and by its silence is productive of serious injury to the army. And in this way: If drunkenness and venereal diseases are of so little account as promoting causes of pulmonary and other diseases, then, of course, we need not be so desirous of seeing them rooted out; and no strenuous efforts will be made in that direction: Let suppose the Commissioners err, which we believe they do, then most assuredly it becomes a matter of the most serious interest to the authorities, not in a moral point of view alone, but for the health of the army and navy, to endeavor to alligate and lessen the spread of these polluting diseases. Some attempt by the exertion of moral and sanitary influences should be made to arrest this evil, if merely for economical purposes. The loss of the services of 16,700 men out of 60,000 of our army, from syphilis, for fifteen days, may be readily reckoned. And we may conclude that the loss of service is just as great in the navy. The total number of days' sickness from venereal diseases in the *Bruswick*, with a crew of 500, during nine months, was 2411. In the navy, the extra duty thus thrown upon the rest of the crew must assuredly prejudice their health. Almost the whole of these venereal diseases are contracted in our chief naval ports. 'It is a fact,' says Dr. Bryson, 'which deserves to be more generally known, that syphilitic diseases are more prevalent in this country, especially in the garrison and seaport towns, than they are in any other part of the known world;' and he complains bitterly 'that the municipal authorities of those towns where it is most rife refuse to co-operate with the Government in establishing hospitals for the cure of the degraded creatures that swarm along the pavements.'"

ART 5.—*Mortality among Miners.* By Dr. ———.

(*Lancet*, Dec. 4, 1858.)

"The vast population of miners form a body who dwell apart from their fellows, and make but rare demands upon their sympathy: yet ever and anon some terrible calamity, which overwhelms a whole community of them with the horrors of painful and premature death, fixes the attention of the rest of the world, and attracts their care. Apart from these sudden visitations, the miners suffer terribly from sickness and violent death. In 1851, the number of lives lost amongst 250,000 persons employed in the coal mines of Great Britain, amounted to 984; in 1852, to 986; in 1853, 957; in 1854, 1045; in 1855, 963; in 1856, 1027; in 1857, 1119. It is a sad total—7060 lives lost in seven years."

ART. 6.—On the Duration of Life among the Jews.

By Dr. E. GALTER.

(Vierteljahrsschr., f. die Prakt. Heilkunde, Bd. ii. 1859.)

According to the investigations of Dr. Galter, the mean life of Jews is 46.5 years; of Germans, 26.7 years; and of Croats, 20.2 years. The mean life of Hungarians is not calculable for want of a table of births, but in Austria alone it is 27.5. The longer life of the Jew in different climates is ascribed altogether to the influence of race. The following are some of the particulars contained in this paper:—

In the county of Wieselberg, where Dr. Galter carried on his investigations for years, the deaths in every 1,000 during the first years of life were—

For the Jews	44.1
“ Germans	123.0
“ Hungarians	167.0
“ Croats	146.9

The deaths per thousand during the first ten years of life do not present these marked differences; thus the numbers are—

Among the inhabitants of Central Europe	448.8
“ “ of Prussia	468.0
“ Germans at Altenburgh	441.6
“ Hungarians at Mether	493.8
“ Croats at Gottendorf	566.2
“ Croats generally	500.0
“ Jews in the city of Wieselburg	462.0

For every thousand individuals, the age of 20 is attained by—

Jews	520
Germans at Altenburgh	513
Hungarians at Mether	445.8
Croats at Gottendorf	398.4

The deaths in every thousand between 20 and 29 at Frankfort are—

Jews	88
Christians	124

The deaths in every thousand are—

	From 30 to 40.	From 40 to 50.
Jews	66.7	70.1
Germans at Altenburgh	79.5	75.6
Hungarians	67.5	78.6
Croats	55.8	59.2
Inhabitants of Central Europe		72.3

At Frankfort the mortality per thousand between the ages of 30 and 40 is, for—

Jews	95
Christians	106

The age of 50 is passed, for every thousand, by—

Jews	319
Germans at Altenburgh	291
Hungarians	224
Croats	236
Inhabitants of Central Europe	297
Prussians	280

The age of 70 is passed, for every thousand, by—

Jews	123.1
Germans	87.8
Hungarians	54.4
Croats	71.1
Inhabitants of Central Europe	117
Prussians	108

At Frankfort, the age of 70 is passed, for every thousand, by—

Christians	39
Jews	73

ART. 7.—*On the Pernicious Consequences of Intermarriage between near Relations.* By Dr. ———.

(*Dublin Hospital Gazette*, Dec. 1, 1858.)

The 'Art Médical' reprints from the 'Nouveliste de Rouen' the following extract from an American paper:—

"In the medical meeting which has just been held at Washington, Dr. S. M. Bemis, of Kentucky, presented a very interesting report on the pernicious consequences entailed by marriage between near relations.

"The investigations made by Dr. Bemis have proved that 10 per cent. of the deaf and dumb, 5 per cent. of the blind, and about 15 per cent. of the idiots, found in the eleemosynary establishments of the United States, are the offspring of the marriage of first cousins. Out of 787 marriages between cousins german, as ascertained by Dr. Bemis, the latter has arrived at the conclusion that 256 had produced blind, deaf and dumb, or idiot children. Dr. Bemis's interesting and useful researches, on which the report is founded, were made in the State of Ohio. In the central counties, to which the census of 1850 ascribes a population of 1,528,228 souls, Dr. Bemis has discovered 483 marriages between first cousins. Of this number, 332 have been sterile, or have produced healthy children, whereas the 151 others have given birth to a sickly generation.

"Taking these particular data as the basis of a general table for the whole Union, of a white population of about 24 millions of souls, the following results would be obtained: 6321 marriages between cousins german, 3477 of which would produce infirm children in the following proportion: 1116 deaf and dumb, 468 born blind, 1854 idiots, and 239 scrofulous.

"Marriage between first cousins is infinitely more rare in the United States than in Europe; nevertheless, Dr. Bemis's report proves, at the same time, unhappily, their too frequent occurrence, and the sad results consequent upon them for the moral and physical condition of the children.

"Several States of the Union, Kentucky among others, have just passed an act, formally forbidding marriages between cousins german. A similar law, although at first sight it may appear to encroach on the rights of citizens, becomes in reality, in the presence of the figures we just quoted, a measure of social prudence and almost of humanity."

ART. 8.—*Experiments on the Materials used for Military Clothing, as protective against heat and cold.* By Dr. COULIER.

(*Journal de Physiologie*, Jan. 1858.)

The result of these experiments is—

1. That the color of the garment does not exercise any sensible influence upon the loss of heat.
2. That all the materials used for military clothing are capable of absorbing insensibly a certain quantity of moisture from the atmosphere, and that this quantity is greater in woollen than in linen or cotton. In cotton this quantity is least of all.
3. That this absorption of water does not involve any direct abstraction of heat from the wearer.
4. That the color of the garment has great influence upon the absorption of

solar heat, and that it is sufficient, with any kind of garment, to modify the sun accordingly, in order to realize the advantages presented by white garments, when the wearer was exposed to the rays of a hot sun.

ART. 9.—On accidents occurring after Re-vaccination. By M. H. LARREY.

(*Bull. de l'Académie Imp. de Méd.*, T. 33, 1859.)

M. Larrey, in a communication to the Academy of Medicine, gives an authentic account of the accidents which had followed the re-vaccination of certain artillerymen stationed at Toulouse. Sixty men were re-vaccinated on the 21st of June, with the usual precautions, from the arms of healthy adults. In nine of these serious accidents supervened, which were divisible into two categories, viz., general accidents of a typhous form, and local accidents of an erysipellatous form. The former occurred in three of the cases, and in these local accidents only appeared consecutively. In the other six the local symptoms appeared after, to be followed secondarily by fever. These cases were, however, no less serious than the others, for all the phenomena of severe phlegmonous erysipelas were developed. One fact is to be remarked, viz., that, with the exception of one, in all the cases, although vaccination had been performed in both arms, engorgement was only observed in the right arm. In ascertaining the causes of this singular occurrence, M. Larrey adverts to the unusually high temperature, and to the fact that erysipelas was all that period prevalent in Toulouse. The artillery at that time, too, had to undergo unusual "fatigue," and it was ascertained that several of the "men had declined to avail themselves of the exemption of grooming their horses allowed for some time after re-vaccination." The force of this latter circumstance is seen in the fact that all the men were seized in the right arm, with the exception of one, who was left-handed.

ART. 10.—(On Re-vaccination. By Dr. VLEMINCKZ, of Brussels.

(*Gaz. Hebdom. de Méd. et Chir.*, Nov. 12, 1858.)

The results of 1000 re-vaccinations performed by Dr. Vleminkz, in the provinces of Ghent and Vilvoorde, may be stated in the following propositions:—

1. Re-vaccination of well-vaccinated individuals generally yields very few useful results.
2. A person who has had smallpox should be more anxious to submit to re-vaccination than one who has been vaccinated.
3. Re-vaccination succeeds the better the more distant the time of the operation is from the original vaccination, or from an attack of smallpox.
4. Re-vaccination is useless up to the twenty-fifth year.
5. From that period up to the thirty-fifth year, re-vaccination yields useful results upon a certain number of individuals, but the number of the latter is exceedingly small; hence, such re-vaccination should not be pressed upon people, though medical men should not altogether discountenance it.
6. From the thirty-fifth year, re-vaccination becomes really preventive, and therefore necessary.
7. Supposing the operation had failed once, it is no reason for not trying it again some time afterwards, as nothing proves that receptivity has not returned between the first and the subsequent operation.
8. The re-vaccination of school boys or girls is useless.
9. Re-vaccination in armies organized like the Belgian (young soldiers) is also useless.

ART. 11.—On some of the cyclical Changes in the Human System connected with Season. By Dr. EDWARD SMITH, Assistant Physician to the Hospital for Consumption, at Brompton.

(*Proc. of Roy. Med. and Chir. Soc.*, March 5, 1859.)

After stating that he had been occupied during the last four years in determining the cyclical changes in the respiratory functions, and referring to

papers already published, and to very recent researches into the quantity of carbonic acid expired, and of air inspired, with the rate of pulsation and respiration in the cycle of the 24 hours, Dr. Smith shows that the daily cycle is not the same at all times, but varies from day to day and month to month through the cycle of the seasons. He also shows from the literature of the subject that, while the cyclical changes in any of the functions of the body had not been hitherto investigated, a large amount of knowledge had been gained in reference to respiration, but which was lacking in extent and demonstration. The results obtained by Mr. Milner, the talented Surgeon to the Wakefield Convict Prison, show that the prisoners gain weight from April to October, and lose weight in the other months of the year. The author has made experiments upon himself, aged 39, and upon Mr. Morel, a gentleman aged 48, and had continued them upon himself from March 31st, 1858, to the present time. Both gentlemen were without hereditary or acquired disease, in robust health, capable of and accustomed to much mental and bodily exertion, above the middle height, and of very regular and moderate habits. The author takes every kind of food heartily, while Mr. Morel dislikes many. The time of experiment was from 7 to 8 A. M., before breakfast, with the body sitting and in perfect rest. His apparatus and method are described and exhibited. The results of the experiments show that as the season advanced from spring to the end of summer all the above-mentioned respiratory phenomena decline. The highest period is in the spring, the decline occurs at the beginning of summer, the lowest period is the end of summer, and the period of increase is the autumn. The extreme difference in the author is 30 per cent. in carbonic acid from the beginning of June to the beginning of September; and on the average of a month to the middle of August, is 17 per cent. in the carbonic acid, 30 per cent. in the air, and 32 per cent. in the rate of respiration. In Mr. Morel the loss at the middle of June is 27 per cent. in the carbonic acid and the air, and 28 per cent. in the rate. The author bears heat well, while Mr. Morel suffers much from it, and the results bear out a former observation by the author, viz., that those who bear heat badly have an excess of all the seasonal changes. Dr. Smith then averages the months according to these seasonal changes, and shows that there are two tolerably fixed periods (maximum and minimum), and two periods of change (increasing and decreasing), and tabulates them as follows:—

Fixed—	{ Maximum.—Jan., Feb., Mar., April, and May, (sometimes Dec.)
	{ Minimum.—July, August, part of Sept.
	{ Decreasing.—June, (sometimes May)
Variable	{ Increasing.—Oct., Nov., Dec., (sometimes Sept.)

He then shows the relation which these changes have to temperature, pressure of the atmosphere, and vapor in the air; and proves that the latter do not altogether account for them. The relation of temperature and pressure is an inverse one, and the former is very marked in sudden accessions, and is therefore a frequent cause of variation: but a medium degree of temperature at 55° to 60°, and a medium height of the barometer, at 29 to 30 inches, are accompanied by all the degrees of respiratory change. He then quotes Barrall's experiments showing the influence of season upon the ingesta and egesta, both of carbon and nitrogen, to prove that within certain limits variations in the amount of carbon exhaled indicate also similar variations in the nitrogen excreted. He also shows that as the skin had exhaled in July only six grains of carbonic acid per hour, in experiments upon himself, it was not important for him to refer to it. Dr. Smith then applies this discovery to the production of disease, and shows that the dangers of the fixed periods are from excess in both directions, i. e., excess and defect, and increase with the duration; while those of the variable periods result from the want of ready adaptation of the system to the variation of the external influences, and particularly of temperature and food, and would be the greatest at the commencement. He has abstracted the deaths in each season in the five non-epidemic years in London (1850-4) from diseases having periods of seasonal increase, and determines the excess or defect in each quarter of the year from that which would have

occurred if the deaths had been equally distributed over the year, and shows that there was a close correspondence between the states of the human system at different seasons and the type of disease then prevalent. Thus diarrhoea, cholera, plague, yellow fever, and asthenic diseases, with diseases of the bowels, prevail with the decreasing and lowest state of system, while diseases of the lungs and asthenic diseases prevail with the maximum state. He shows, further, that the advancing type of disease is that of the advancing season, so that in epidemics of scarlatina occurring after the minimum period the most asthenic type is observed at first, while in measles occurring with or after the maximum period the most inflammatory cases occur early. Scarlatina is checked by the increasing state of the system and measles by the decreasing. Hence in every disease it is important to bear in mind the season of the year as a measure of the state of the human system, and in every epidemic it is necessary to consider the nature of the advancing season. The author has also investigated the viability of children born at different seasons in reference to the period of procreation and of birth, the former illustrating the state of system in the parents, and the latter in the child, and found that it referred only to the latter. Of all the children who died under the age of 1 year in the northern district, from Newcastle to Kendal, in 1867, and whose age in months was recorded, the largest percentage was born in the summer months, the period of decreasing and minimum vital action of the human system. Animals which procreate once a year have their sexual appetites excited in the hot season, but they bring forth their young in the cold season. The paper concludes with four deductions: 1. Seasonal diseases must now be referred directly to the state of the system, and only indirectly to meteorological conditions. This does not affect the fashionable search after poisons. 2. The type of a seasonal disease varies with the advancing season. 3. The cyclical rotation of the seasonal changes in the system explains in great part the cessation of seasonal diseases; for while such diseases may increase as the state of system increases in which they arise, they must decline and cease as the state of system changes into its opposite. This is illustrated by comparing the march of a cholera epidemic from June to November, with the variations then proceeding in the system, and also the cessation of an epidemic of scarlatina and measles. 4. These cyclical changes are a part of the *vis medicatrix naturæ*. Having thus proved the great importance to health of this rotation of changes, Dr. Smith exposes the folly of endeavoring to maintain in our hospitals, public offices, and houses, an unvarying condition throughout the year, and states that the contrary plan had been of incalculable value in the treatment of phthisis.

ART. 12.—Illustrations of the mode of Propagation of certain Epidemic Disorders. By Dr. T. HERBERT BARKER.

(*Brit. Med. Journal*, Nov. 20, 1869.)

Dr. Barker divides epidemic and endemic disorders into three classes:—

Class 1. Diseases not transmissible, originating in a poison not reproducible in the body.

Class 2. Diseases transmissible, originating in a poison which is reproducible in the body.

Class 3. Diseases not transmissible, originating in meteorological variations.

To the first division of this classification, which, it will be observed, is based on the cause of the diseases, the author assigns ague, diarrhoea, remittent fever, and the endemic continued fever of this country, which, according to the writer, was ordinarily of the typhoid type. Of these diseases, the endemic continued fever was first considered in relation to its cause. Dr. Barker here affords numerous illustrations from experimental and practical evidence, in proving that fever may be produced by poison emanating from decomposing animal substance and from cesspools. He infers that the poison producing the endemic non-contagious fever was inorganic and alkaline in character; and by certain descriptions of the nature of cesspool-air to show that a peculiar alkaline emanation was always present.

He then considers diarrhoea as originating from the same cause, and very cautiously branches the possibility that sulphuretted hydrogen is the purgative poison from the cesspool.

Several experiments as to the effects of sulphuretted hydrogen simply are adduced in support of this view. A great variety of illustrations, carefully collected and arranged from the observations of several practitioners, and bearing on the propagation of the diseases of this class, are introduced in this division of the paper.

In the *second* division, the chief point of novelty introduced rests on the arguments for and against the idea of the direct or indirect spontaneous origin of some of the communicable diseases belonging to the class; as, for instance, puerperal fever, typhus and typhoid fevers, and erysipelas. The author is disinclined to believe in the doctrine of direct spontaneity; but shows, by one forcible illustration, that a specific puerperal fever could be contracted by mere inoculation with the secretion from the peritoneum of a patient dying from simple peritonitis.

Smallpox, scarlet fever, measles, and true Asiatic cholera, admit, however, in the author's opinion, of no doubts in this respect. They clearly have their specific poisons, and could not be propagated without the actual presence of the poison. This division of the paper is also copiously illustrated by cases bearing on the points under debate.

In the *third* division, Dr. Barker includes common catarrh, croup, influenza, and a form of diarrhoea common among poorly clad people on a sudden fall of the barometer. Diseases of this class have this peculiarity: they break out all at once over a wide surface of country, and, after attacking on the same day and even almost at the same hour, great numbers of persons, pass away in like general manner, and leave only their consequences behind.

Dr. Barker condenses his main argument in the succeeding propositions:—

1. The poisons producing endemic non-contagious diseases may differ from those poisons which produce the contagious diseases in the simple particular, that the first named poisons, however subtle and diffusive, are inorganic, and lose their influence in the body which receives them; while the second are organic, and, being capable of reproduction under favoring conditions, are propagated in the animal body: finding, in fact, in the animal the conditions most favorable for their propagation and increase. These poisons, eliminated by the sick man, and finding no favorable seed ground in another person susceptible to them, may lie in temporary death and disease for a season. But once set at liberty and diffused by air or water so as to approach the susceptible individual, they put forth a new existence, and an epidemic starting from one centre is the result.

2. In regard to these poisons, whether of the first or second series, and whether organic or inorganic, if a medium for their transmission into the body be supplied, it is of little moment how the poisons are introduced. There has been much dispute lately as to air and water as the media of special diseases. The end of the dispute lies in accepting both as possible mediums, and in looking on the occurrence of one or the other as the medium as a mere matter of accident.

3. The last proposition he describes as relating to the influence of season, temperature, moisture, and other modifications of the atmosphere, in their effects on the spread of those diseases which have their origin in an organic and reproducible poison. Much has been written and said on this point, and, as is common, extremes of view have been taken. Meteorologists have denied contagion; contagionists have ignored meteorology. But whoever will remove from the combatants and look calmly on, will see that both have a kernel in their cracked nut. Given certain meteorological conditions in tropical India, and the vaccine virus, and even smallpox virus, loses its power. Given other meteorological conditions, and the virus has an activity which is inappreciable. Now, who in this matter is right or wrong? the palmed contagionist with the virus on his lancet-point which won't go, or the triumphant meteorologist with his eye immovable on the thermometer or the rain-gauge? Looking on without bias, the impartial observer sees them both correct in their special

ways. He sees, in short, that the virus is necessary to the production of the disease; but that the virus can only act during conditions of heat or cold, dryness or moisture, favorable to its development. Finally, the author suggests that the same relationship between the poisons of spreading diseases and atmospheric conditions is universally sustained.

ART. 13.—*On the mode in which Arsenical Paper-hangings may prove injurious.*
By DR ALFRED S. TAYLOR, F. R. S.

(*Medical Times and Gazette*, Jan. 1, 1859.)

A gentleman, whose library walls were covered with an arsenical paper, had suffered for some time from chronic inflammation of the eyes, especially affecting the conjunctive of the eyelids. On the discovery that arsenic was contained in the green pigment of this paper in rather large quantity, he caused it to be removed during the summer, and to be replaced by another containing no arsenic. The inflammation from which he had suffered disappeared, but within the last few weeks it has returned. He informed Dr. Taylor that he had been dusting some books in a book-case belonging to this room, and he supposed that the dust which had accumulated for two or three years had affected his eyes, and had caused a return of the inflammation. Some of the dust was carefully removed on Tuesday, the 21st of December, from the tops of a few books by a feather, and submitted to a chemical analysis. The dust weighed one grain and a half; it had an olive-green color, and under the microscope it presented the appearance of fibres, with numerous particles of various colors, chiefly of a grayish-black. Treated by Reinsch's process, a portion of this dust yielded a deposit of arsenic, and there was therefore clear evidence that some of the arsenical pigment, formerly on the walls, had found its way through the glass doors of the book-case, and had been deposited in the form of a fine dust on the tops of the books. On Thursday, 23d December, after having made this chemical examination of the dust from a private dwelling, Dr. Taylor procured from the shop of Messrs. Marratt and Short, opticians, King William Street, London Bridge, a quantity of dust for the purpose of analysis. The walls of this shop are covered with an unglazed arsenical paper, and they have been so covered for a period of three years. In collecting the dust from the tops of the instrument cases, great care was taken not to touch the walls. The quantity thus collected for examination amounted to about 450 grains. It was nearly black, and under the microscope it appeared to consist of fibres and sandy particles. It was very light and lustrous. 150 grains of the dust were examined by Reinsch's process, and enough metallic arsenic was obtained from this quantity to coat about ten square inches of copper foil, in addition to a piece of copper gauze. From the deposit on the latter, by the application of heat, octahedral crystals of arsenic were readily obtained. The cases had not been dusted for a period of nine months. The instrument-cases are secured by glass-doors, and they are lined inside at the back with arsenical paper. A small quantity of dust was removed by a camel's-hair pencil from the projecting portions of the thermometers and barometers which are kept there. The quantity thus obtained weighed about eight-tenths of a grain, of which five-tenths were taken for examination. This half grain of dust sufficed to cover with metallic arsenic a square inch of copper gauze. A portion of this, when heated, yielded a large number of well defined octahedral crystals of arsenious acid.

These facts lead to the inference that the air of a room, of which the walls are covered with an unglazed arsenical paper, is liable to be charged with the fine dust of the poisonous arsenite of copper. Those who inhabit the rooms are exposed to the risk of breathing this dust. The poison may thus find its way by the pulmonary membrane into the system, or it may affect the eyes, nose, and throat, by local action. That but few cases of actual poisoning under these circumstances have occurred is fortunate; but cases involving serious symptoms only, would be likely to attract attention. There may have been numerous instances of a disturbance of health depending on this arsenical paper, which, from absence of suspicion, has been referred to other causes

The degree of exposure, the state of health, peculiar susceptibility, and the eliminative power of the system, may account for the comparative rareness of these cases. The mode in which the pigment is laid on the paper may be such as to prevent, in some instances, the fine particles of dust from escaping. The fact, however, now demonstrated, that arsenical dust is breathed by those who occupy rooms thus papered, explains the similarity of symptoms observed, justifies the statements made by Dr. Hinds, Dr. Halley, and others, and proves that those who have experimented on this subject with negative results, have not taken the right course to arrive at the truth. Their results have, to a certain extent, misled the public by teaching them to rely on what is now proved to be a false security. If, as a general rule, the quantity of arsenic which can penetrate the body from this source is small, it is still desirable that arsenic should not be breathed, day by day, in any proportion. The defenders of this noxious manufacture will hardly go to the length of asserting that this arsenical green, which is a potent poison in the stomach, can exert no injurious effect when taken into the lungs; and yet, unless this assumption be made, the inevitable inference is that these papers should not be used for covering the walls of our dwellings.

(B) ACUTE DISEASES.

ART 14.—*On the changes which are supposed to have taken place in the type of Continued Fever.* By Dr. Murchison, Assistant-Physician to the London Fever Hospital.

(*Edinburgh Medical Journal*, Aug. 1868.)

The small mortality, and the frequency of sudden improvement in the symptoms, which were observed to follow venesection in the epidemic of 1817-20, and which have been attributed by Dr. Christison to that practice, were, as Dr. Murchison seems to show in this paper, characteristics of the relapsing form of fever which then prevailed, and have been equally characteristic of it at all times, even when bloodletting has never been resorted to. And if so, then it is not a legitimate argument in favor of a change in the constitutional type of fever, to contrast the mortality after bloodletting in the *relapsing* epidemic of 1817-20, with what would be the effect of bleeding in the *typhus* of the present day.

ART. 15.—*On the connection between Cholera and Drought.*

By M. DE RUOLZ.

(*Lancet*, March 19, 1869.)

"M. de Ruolz," says the writer of 'Medical Annotations' in the '*Lancet*,' "well known for important discoveries in the art of electro-gilding, has been content to argue from a narrower basis, and has lately communicated to the '*Cercle de la Presse Scientifique*' of Paris, an interesting series of facts regarding the proportion of moisture contained in the atmosphere during the prevalence of cholera. By analyzing the various statistical data collected during the French epidemics of 1832, 1849, and 1854, M. de Ruolz has deduced the following facts: In 1832, the epidemic in Paris reached its height in April, when the hygrometer was lowest; it declined to the utmost in September, when the hygrometer was highest. In 1849, the hygrometrical observations at the observatory of Paris had been unaccountably neglected; but 1854 afforded results quite in accordance with those of 1832. Hence M. de Ruolz infers that there undoubtedly exists a positive coincidence between the intensity of the epidemic and the hygrometrical state of the atmosphere, the former being in the inverse ratio of the humidity of the air. Other circumstances he considers to point to the same conclusion; thus, Lyons, a city remarkable for its damp atmosphere, owing to the two rivers which embrace it, has never been visited by cholera. Amongst washerwomen, who live in a damp medium, he says that cholera has always been very low, and he makes the same assertion with reference to 'persons living in damp places, on the banks of rivers, &c.'

Finally, M. de Ruolz tells us that, during the last choleraic invasion in London, the copious watering of the streets was found very beneficial. The views thus enunciated in the '*Cercle Scientifique*' do not remain wholly unopposed. Thus, it is remarked that sailors were very subject to cholera; that cholera made great havoc in Holland, where the air is notoriously moist; and that in certain localities the cholera has been known to lay waste one bank of a river and to spare the other. M. de Ruolz, however, presses for further investigation, and suggests that, by way of experiment, in any future epidemic the streets should be well watered, and the fire-engines should play on the roofs of the houses in the infected quarter. It were idle to smile at his singular expedient, if indeed it were probable that any useful result could flow from it. And there is no valid reason why Mr. Braidwood should not brigade his force against an epidemic, or why cholera should not be attacked with the fire-engine as well as with the lime-pail and the brush of the whitewasher—a favorite panacea with metropolitan vestries—or by the artificial creation of ozone and the introduction of certain ozonified breezes, as more subtle chemists have recently suggested. But we have the strongest doubts whether M. de Ruolz's theory will 'hold water.' The experience of Lambeth, of Wandsworth, and of other humid districts close to the river-side, has certainly not offered confirmatory facts, and though unacquainted with the actual statistics of deaths from cholera amongst London washerwomen, we are in possession of a number of isolated observations which do not dispose us to regard soapbuds as a prophylactic against epidemics in the sense which M. de Ruolz suggests."

ART. 16.—*Smallpox supervening on Measles and Scarlatina.*

By MR. BROOKE GALLWEY, Surgeon, Royal Artillery.

(*Lancet*, Aug. 23, 1854.)

In one of these cases we have smallpox and measles co-existent in the same individual; in the other, smallpox and scarlatina—a coincidence of which few, if any, instances are on record.

CASE 1.—"Between three and four years ago, a young soldier, declining rapidly in the second stage of phthisis, became the subject of measles, so well developed that it might have been selected as a model case from which to study that exanthem. The eruption had arrived at its climax, and had gained its turning point—the thoracic symptoms, as might be expected in such a subject, being exceedingly severe—when the patient sustained unexpectedly an attack of rigors, and, at my visit on the following morning, presented, *quoad* his entire face, the appearance as of a substratum of shot beneath the skin. Unprepared for what was about soon after to develop itself, it will easily be understood how much at a loss I felt to account for the very unusual state of things thus unexpectedly presented to my notice. Twenty-four hours later and I found I had a case of *concurrent smallpox*, engrafted on a ground of *rubeola*, to deal with; and I may truly say that never had I met with more finished representations of either disease than were now delineated together in the same individual. The patient contended manfully against the three separate and formidable assailants that had thus pitilessly set upon him, until, under the mortifying process of the last, the powers of life gave way, and a fatal issue overtook him.

"The case, of which I have now afforded but a brief outline, occurred at the Military Hospital at Devonport, and was seen, amongst other individuals, by the principal medical officer of the station, Mr. Dartnall. I forwarded the details of it at the time, *in extenso*, to the Director General of the Medical Department of the Army, in the archives of whose office I doubt not they still exist."

CASE 2.—"Within a few weeks of the coincidence I have recorded—smallpox, I should explain, being *prevalent* at the time in the establishment—the following not less remarkable occurrence developed itself in the same hospital, in the person of a soldier of the 1st Somerset Militia:—

"Private James Bale (or Ball), æt. 20, after some few days of pyrexia, accompanied at first with 'a strawberry' tongue, and then with so much swelling of that organ as to demand free incisions—severe sore-throat being an attendant symptom—presented, in due time, an eruption of scarlatina, which came out

well, and was intense in degree. The pulse ran high, deglutition became very difficult, delirium set in early, and the general tendency of the symptoms was in a downward direction.

"Between the third and fourth day after the eruption had declared itself, the following entry occurs in the medical register of the regiment, for which I am indebted to the (then) assistant-surgeon of the corps: "Some vesicles, depressed in centre, have appeared, bearing the character of varioloid eruption; is with difficulty aroused to answer questions: the primary scarlatinal eruption is scarcely perceptible, tongue very dry and coated—almost black; feces passed under him in bed." Evening of the same day: "Face thickly covered with smallpox pustules; scarlatinal eruption receded; is in every respect worse, and apparently sinking." And, the day after, "Passed a quiet night, but lies in a comatose state; varioloid eruption in its most confluent form; breathing laborious; cheeks puffed out in expiration," &c. The patient soon after expired."

ART. 17.—*On the question of the affinity between Scarlet Fever and Measles.*
By Dr. KUTTNER, of Dresden.

(*Journ. für Kinderkrankh., and Dublin Hosp. Gaz., Dec. 15, 1858.*)

That measles and scarlatina, in their symptoms and in their essence, present two well-defined states of disease, is one of the most indisputable facts in pathology. Schönlein, making use of an analogy derived from botanical science, looks on measles as a peculiar exanthematic form of catarrh, and accordingly places it in the family of the catarrhs; whereas scarlatina is placed by him in the group of erysipelatous diseases. Admitting that, in the regular course, such sharply defined examples of the diseases exist, Dr. Kuttner observes, that experience furnishes us with androgynous cases calculated to embarrass even the experienced "diagnostiker." If the diseases were always so well marked as we find them in the handbooks, there would be no difficulty. Sometimes the exanthem bears the character of scarlatina, while the catarrhal irritation of the bronchial membrane, and of the mucous membrane of the nose and of the eyes, indicate the morbillous process; or, on the other hand, the rash of measles is accompanied by vomiting, by a sharp attack of angina, and by the characteristic scarlatinal tongue.

We see occasionally, in the same individual, parts of the skin presenting the scarlet-red eruption, while in others the rosy rash of measles exists. We have, then, not merely examples of transition, but we see cases which may be termed hybridous. If we were even disinclined to assign any relationship to the two diseases, arising from the fact of their passing into each other, there is still another observation which shows it in a higher degree—namely, that the *same* contagious matter appears capable of producing, in different individuals, different diseases: in some measles, in others scarlatina. Many reliable proofs of this are to be found in medical literature, to which the following may be added, as affording good examples: During an epidemic of measles, a boy of sixteen years of age became affected with the disease, which ran a favorable course, and at the end of three weeks he was sent from Dresden to his father's country house, at some distance from the city. A little sister, two years of age, who visited the brother on the day of the appearance of the rash, although immediately sent away, sickened on the tenth day, presenting the ordinary symptoms of the eruptive fever; in her, too, the disease passed over mildly. A second sister, one of the older members of the family, who had before repeatedly attended upon persons in measles without taking the disease, did not now escape. There yet remained a third sister, who was married, and who had been for fourteen days on a visit to her father's house, but who, from never having had measles, carefully avoided intercourse with the sick and the convalescent, not, however, guarding against the possibility of transmission through a third person. Without any previous indisposition, sharp febrile symptoms appeared in this case, leading to the belief of the invasion of measles. An intense scarlatinal eruption, however, manifested itself, with the characteristic affection of the throat, and with the red tongue. The exanthematic period passed over without any remarkable symptoms, ending in the second week

with an extensive exfoliation of the epidermis. No second case of measles or scarlatina occurred in the house.

Although observations such as these have been made by practical physicians, and recorded, still this is worthy of notice, from the concurrent circumstances, and because the course of the disease was so characteristic as to leave no doubt as to the correctness of the diagnosis.

In what relation scarlatina and measles stand to each other, and whether the same contagion can, in reality, produce both forms of disease, we are scarcely in a position to determine. A sceptic will naturally say that the scarlatina of the last named case was not the product of the contagion of measles, but was developed independently.

Admitting, however, that a direct proof to the contrary cannot be given, the fact nevertheless remains, and no communication from without, capable of conveying scarlatina, took place. Is it in reality so preposterous a notion, that the matter of the exanthematic contagion may act like a ferment without any special character, and, according to individual disposition, may produce measles in one case, and scarlatina in another, as, under similar conditions, the impression of cold may cause in one individual catarrh, and in another rheumatism?

ART. 18.—*On the use of Hydrochloric Acid in Scarlatina.*

By Dr. M'SHERRY.

(*American Journal of Medical Science*, Oct. 1858.)

Dr. M'Sherry says that he has for some years past employed muriatic acid in doses of from one to three drops largely diluted with water. It is readily taken, and by its cleansing the throat in its passage, supersedes the necessity of gargles. "I give my little patients oranges to eat, and lemonade to drink, keep up faithfully a surface inunction, and use habitually little other medicine than the acid. It may be necessary to clear out the primæ viæ by an emetic or aperient, or both; but I have long given up the use of purgatives as not only improper, but very dangerous. A single dose of calomel may be well at the beginning, but no acids should be given with it, or even follow it speedily. The danger of the association of vegetable acids with mercury is not so obvious, and may be overlooked. But it has happened that they have converted calomel into a more dangerous form of mercury; and a fatal case is recorded merely from its having been given in that popular vehicle, currant-jelly. The practical physician should not let such an instance as this escape his memory."

ART. 19.—*On the supposed antagonism of Ague and Consumption.*

By Dr. PEACOCK, Assistant Physician to St. Thomas's Hospital.

(*Medico-Chir. Review*, Jan. 1858.)

After a careful statistical investigation, Dr. Peacock concludes that the information elicited in this manner is only negative. He then inquires whether clinical observation is capable of yielding more positive results, and after relating six cases, he proceeds to say:—

"The facts which I have now detailed, conclusively show that neither does the existence of consumption prevent the occurrence of ague, nor the occurrence of ague preclude the subsequent development of consumption; but they do not prove that the supposed antagonism may not, in some degree, exist. For, on the one hand, phthisical patients, subjected to the influence of malaria, may take ague in less proportion than healthy persons similarly exposed; and on the other hand, persons who have had ague may be less liable to consumption than those who have not had the disease. These objections I have no means of meeting; but when it is considered that, within a period of two years, five cases of the co-existence of the two diseases have fallen under my own notice, at one public institution, where the majority of phthisical patients I met come from malarious districts, the coincidence cannot be regarded as exceptional or rare." I cannot, then, but conclude, that it is not probable any

* During the two years in which these five cases occurred, Dr. Peacock treated, at St. Thomas's Hospital, among the in and out patients, 236 cases of ague, and at least 262 cases of

material antagonism exists between phthisis and intermittent fever. The facts do not, however, warrant the denial of the supposition altogether, and there are probably few popular ideas which have not some foundation in truth.

"The correct inference would appear to be, that the influence, if any, exerted on the prevalence of consumption, by a malarious atmosphere or by ague, is far less important than that of various other causes which affect the development of that disease. The practical conclusion also to be arrived at is, that as phthisical patients may take ague, and as such complication materially aggravates the original disease, we should, in selecting residences for consumptive patients, avoid those situations which are marshy, or in which aguish affections are known to prevail."

ART. 20.—On Rheumatism. By Dr. SKODA.

(*Prager Vierteljahrsschr.*, Bd. III., 1858; and *Edinburgh Medical Journal*, Jan. 1859.)

Formerly, it was the practice to treat acute rheumatism with warm applications, from the dread of driving the disease inwards: now, we know that the affection of the internal organs is so far from being in any way opposed to that of the joints, that, on the contrary, the lungs, pleura, peri-, and endocardium suffer most when the joints are most severely affected, though to this there are exceptions. From this it follows that no ease-producing applications are to be shunned from any vague dread of metastasis. Should warm applications give the desired relief, there can be no possible objection to them; but if not, as often happens, then we may at once with propriety resort to cold ones, and Skoda is satisfied that, by doing so, lung and heart disease are not increased, but greatly diminished, particularly if, under their use, the pulse diminishes in frequency, and the patient's restlessness decreases, as these are all the alleviations attainable under any therapeutics in rheumatism. As to other remedies, Skoda has but little to say in praise of them. When the joints are much swollen, leeches are not contraindicated, but the relief obtained is not lasting; bloodletting (general), may also be occasionally usefully employed, but its repetition is injurious. Of internal remedies, Skoda has employed Sod. Bicarb., Iodine, Sublim. con., Quinine, Tart. emet., Digitalis, Pot. nit., Ammon. mur., &c., without much benefit. Quinine is only useful when the attacks are paroxysmal. Digitalis and Tart. emet. are, however, occasionally useful in individual cases, though no distinct reason for it can be given, nor their success predicted. Narcotics are most useful in lessening the pain; and as this usually increases at night, they are best given at bedtime; unfortunately, many bear these ill, small doses being followed by sickness, vomiting, and increase of pain.

(Dr. Kraft adds, that for many years ice applications have been successfully used, in his department of the hospital at Prague, in the treatment of acute rheumatism, particularly when great pain is accompanied by greatly increased temperature of the parts.)

ART. 21.—Novel propositions in Gout and Rheumatism.

By Dr. FRANK J. BROWN, of Chatham.

(*British Med. Journ.*, Nov. 6, 1858.)

Dr. Brown embodies his views respecting gout and rheumatism in the following propositions:—

I. Gout and rheumatism never co-exist.

That is to say, there is no such disease as rheumatic gout.

This is the opinion of Dr. Garrod and of an increasing number of physicians. The disease termed rheumatic gout is really gout affecting the large joints. It is commonly met with in licensed victuallers, and it has a duration of four months.

phthisis. The precise number of cases of the latter disease he cannot give, as some cases of phthisis are entered in the out-patients' book as "affections of the chest." He has also met with several other cases in which there was reason to suspect tendency to phthisis in aguish patients.

- II. *An individual with the gouty diathesis never at any period of his life has rheumatism: and conversely, that an individual with the rheumatic diathesis never at any period of his life has gout.*

This proposition is put forward as original, and requires proof: it is on its trial.

The author's belief is, that every pain commonly termed rheumatic occurring in an individual with the gouty diathesis, is in reality a gouty pain: and that gnawing pains in muscles, membranous layers, and joints, arising from exposure to damp, are properly to be termed gouty in gouty individuals, and rheumatic in rheumatic individuals. To discover the diathesis, it is necessary to learn the family history, hereditary influence being clearly marked in gout. There are indications also which enable us to conclude that an individual has the gouty diathesis, such as red gravel and renal calculi, tophaceous deposits in the outer ear and elsewhere, one form of dyspepsia, inequality of temper, habitual condition of the urine, &c.

Women whose fathers have suffered from gout commonly present the minor symptoms of the same disease; but these symptoms are very often regarded as appertaining to other complaints, and the pains are termed rheumatic. In such women, bloody urine and renal calculi are frequently observed.

- III. *Gout affects the system occasionally as an acute general fever, like acute rheumatism (which is termed by the public rheumatic fever).*

Thus there is a podagria or gouty fever, like as there is a rheumatic fever. If there be any objection to the term fever in these cases, let the term *acute general gout* be employed, to correspond with the term *acute general rheumatism*.

Those that choose to designate the complaint fever, are justified in doing so by the analogy of catarrhal fever and of biliary fever—in both which affections there is toxæmia and nervous disorder, even as there is in rheumatic fever and in gouty fever.

Many cases now termed acute rheumatism or rheumatic fever are really cases of gouty fever. They are to be distinguished by the discovery of the diathesis, by the presence of uric acid in the serum of the blood, by the duration of the complaint, and by the effects of remedies.

- IV. *The duration of gouty fever bears a triplicate ratio to that of rheumatic fever.*

Thus, whilst rheumatic fever has a full duration (in severe cases) of forty days, gouty fever endures one hundred and twenty days.

There are many mild cases of rheumatic fever which last only twenty days: and physicians have reported cases yielding to treatment in nine days. The writer does not know whether there are corresponding cases of gout; but he has never seen any subside under four months.

ART. 22.—*Remarks on the use of Bleeding in diseases.*

By Dr. MARSHALL, Physician to St. Mary's Hospital.

(*Proc. of Roy. Med.-Chir. Soc., Nov. 30, 1868.*)

The object of the author is to show that, by arguing from certain admitted facts respecting the effects of bleeding, a rule of practice may be deduced indicating the right application of the remedy in diseases. The conclusions at which he arrives are these:—

1. There is no proof that venesection has any *directly* beneficial influence over the progress of inflammations, either *external* or *internal*. On the other hand, the injurious effects of large bleedings, especially in those inflammations in which the integrity of the lungs is seriously compromised, have been often demonstrated.

2. Nevertheless, venesection is, at times, of great service *indirectly* in the course of inflammations, and of all other diseases which occasion congestion and oppression of the heart, by removing this *secondary* consequence, which arises accidentally out of the inflammation.

3. In all cases in which venesection is of service, it acts alike—*viz.*, by relieving the cardiac congestion; it neither arrests nor modifies beneficially the inflammatory process.

4. A marked distinction is to be drawn between the effects of bleeding in inflammations and the local abstraction of blood from an inflamed part. Local abstraction of blood materially influences the inflammation, reducing the most characteristic of its phenomena—the pain, the heat, the redness, and the swelling; but it only influences, in this way, *internal* inflammations when there is a direct vascular connection between the part inflamed and the part whence the blood is drawn.

5. It is not denied that local irritation of an external part may influence an internal inflammation (even when there is no direct vascular communication between the skin and the inflamed part) by reflex action, conveyed thence from the skin through the vaso-motor nerves of an inflamed part.

The author demonstrates the inefficacy of venesection over internal inflammations in two ways: 1st, by arguing of what is *seen* of its inutility in external inflammations; and, 2dly, by the fact of the large and general concurrent testimony of modern experience, which has proved that large bleedings—the only bleedings which have any manifest influence over inflammations—are often very injurious, their good effects being dubious and disputed.

Venesection has been long since abandoned in the treatment of external inflammations because of the danger and inutility of the practice; and though less easily traced in the case of internal inflammations, the same conclusion has gradually forced itself on the minds of observers. The practice is no longer regarded as essential in their treatment; but the author cannot believe that physicians have been during so many ages, and still are, acting under a delusion as to the services rendered by venesection in internal inflammations. He, therefore, endeavors to explain the discrepancy by assuming the position—that venesection, as regards internal inflammations, is of service, not through any *direct* influence which it exercises over the inflammatory process, but in consequence of its removing certain of the *secondary* consequences which arise accidentally out of the inflammation—to wit, the oppressed and congested condition of the heart. He asserts that venesection is never required excepting when this congestion of the heart exists; but at the same time observes that there are congestions of the heart, and periods in the course of all congestions, in which no relief can be hoped for from the remedy. Modern experience justifies this position, for venesection is rarely ever practised now, except in those diseases in which this congested condition of the heart necessarily plays a prominent part. The benefits, indeed, of venesection become more clearly manifest in proportion as the disease for which it is practised produces a higher degree of this congestion. As illustrations of this, cases are related in which the original disorders provoking this congestion of the heart lay respectively in the heart itself, in the lungs, in the abdomen, and in the brain. In all of them the same condition of the heart and the same symptoms were present, claiming a similar treatment. The relief given by venesection, in three of these cases, was immediate and permanent; in two of them no inflammation existed; and in the third—one of pneumonia—the venesection had no influence over the inflammation of the lung, for the stethoscope demonstrated that the portion of the lung inflamed was in the same condition of consolidation the day after as on the day of the bleeding; in the fourth case—injury of the head—the man was not bled, and died, the immediate and only apparent cause of death found being extreme congestion of the heart and lungs. Bleeding, it is believed, would have saved this man's life.

He offers the same explanation of the benefit of venesection in wounds of the lung, long before inflammation exists, and he thinks that the same circumstances explain the relief of the pain often attendant on pneumonia, which, while occasionally due to pleurisy, he thinks more frequently produced by cardiac congestion—a pain which is sometimes felt when there is no pleurisy, or may not be felt when pleurisy is present. In certain conditions of disease of the heart and great vessels, in injuries of the head and apoplexy, and even in peritonitis, the benefits occasionally following venesection may all, he thinks,

be referred to the relief of cardiac congestion. Such an explanation seems to the author clear and simple, and in complete accordance with our physiological knowledge and our practical experience; and with reference to any other beneficial and direct actions, which venesection is supposed to exert over inflammation, he observes that all our knowledge of the effects of venesection has not yet enabled us to show what those other actions are; and all our modern experience manifestly tends to prove that venesection has no directly beneficial influence over inflammations, but that, if large, it acts injuriously by weakening the system, which has to sustain the force of the inflammatory process.

If the facts here maintained be correct, then it necessarily follows that the objects of, and indications for, venesection become clear and definite, and that a rule of practice may be established from their consideration. It also follows that venesection is now-a-days less frequently practised than is desirable; that it must have been of service in other days, just as it is of service now; that it is requisite now, just as it was requisite then.

The author next refers specifically to venesection in pneumonia. Here there are two main special facts to be considered, which contraindicate to a certain extent the venesection: 1st, the diseased condition of the lungs, which produces the cardiac congestion, cannot be removed by the bleeding; 2d, the loss of blood is, so long as the pneumonia lasts and in proportion to its extent an irreparable loss. Hence it follows that the more extensive the inflammation, and the more urgent the symptoms, the greater is the danger of venesection; and in fact, just in proportion as the bleeding is more required to relieve the heart, is the practice of it less applicable. In pneumonia the function of the chief sanguificating organ of the body is arrested; and therefore to take away blood at such a time is to take away what cannot be restored so long as the inflammation lasts. The loss of blood, which might be borne with impunity in other inflammations, seriously compromises the future of the patient in this inflammation of the lungs. Venesection, he says, is applicable in pneumonia when the general symptoms have arisen rapidly and are severe, and when the inflammation is limited, as in the case related—when the urgency of the symptoms is, so to say, out of proportion to the extent of the inflammation, as measured by the stethoscope; that is, when the aerating processes are not seriously and extensively compromised. The object of the venesection is, in all cases, to relieve the heart from its temporary embarrassments. When the congestion of the organ is the consequence of its own partial paralysis, then of course venesection cannot restore to it its equilibrium.

With reference to the local abstraction of blood, Dr. Markham points out the importance of vascular connection between the skin and the inflamed organ, reasoning from the analogy of external inflammations. The benefit of leeches in pneumonia he refers simply to the attendant inflammation of the parietal pleura, and thinks that in pericarditis the pain is frequently due to concomitant pleurisy, and is relieved in the same way. In endocarditis he believes they can be of no service; nor can they draw one drop of blood from an inflamed liver or kidney. In such cases he conceives that the benefits attributed to cupping or leeches may be due to other remedies employed at the same time.

The author makes no attempt at any explanation of the mode of action of either venesection or local abstraction of blood. If the facts stated be true and rightly interpreted, their practical deduction may be accepted, without waiting for any theoretical explanation of them.

ART 23.—*An argument for Antiphlogistic Treatment.* By Dr. HENRY KENNEDY, Physician Extraordinary to Sir P. Dun's Hospital.

Edinburgh Medical Journal, Jan. 1839.

In a paper 'On the Change of Type Theory in Disease,' in which it is maintained that the type is always changing, and necessitating its consequences corresponding changes in treatment, we meet with the following passages in favor of antiphlogistic measures:—

"Have those, however, who are now so ready to assert that nature is the curer of disease, ever fully considered her plans? I doubt it; else, it strikes

me, they would not be so ready to find fault with the antiphlogistic treatment. For then they must have observed that nature's operations have ever a tendency—supposing them to go on to cure—to reduce the system. Take an affection of very common occurrence, and more frequently left to itself than, probably, any other—a common cold: and what do we observe? A general malaise; some loss of appetite and strength; a disinclination to follow one's usual pursuits; occasionally some slight loss of flesh; very commonly paleness of the face, and then recovery. But if we go a step farther, and suppose a case of fever, left to itself, what will be observed? An utter loss of strength, appetite, sleep, and flesh (in cases where the latter is not observed, a very unfavorable sign it is): a persistence of disease for two, three, or more weeks; often during this period the occurrence of hemorrhage, of one form or other, more frequently from the nose than elsewhere, and much more frequent at certain periods than others; the occurrence of diarrhoea, quite independent of the typhoid type of fever; sweats; and, lastly, crises of different kinds. I have supposed the fever not to have been complicated at all. But who does not know how rare this is; and that the disease is ever presenting complications of the head, chest, or abdomen? One point, at any rate, is beyond all dispute, that the final result leaves the patient much reduced in every way; and, speaking generally, some weeks elapse before perfect recovery takes place. In other words, nature's cure is by direct and unmistakable antiphlogistics. But now a-days, and when nature is made all in all, these facts, though so obvious, appear to be entirely overlooked; and yet I cannot but think they prove, most unequivocally, the direction which art should or may take; and that the present cry out against antiphlogistics is not only utterly groundless, but that this line of treatment may be followed with the greatest advantage, when the case requires it."

(C) CHRONIC DISEASES.

ART. 24.—On the treatment of chronic Alcoholic Intoxication.

By Dr. MARCET, Assistant-Physician to the Westminster Hospital.

(*Lancet*, April 2, 1859.)

Oxide of zinc, according to Dr. Marcet, is the proper remedy for the nervous symptoms resulting from the long-continued use of alcoholic beverages. After considering the physiological and therapeutical properties of this drug, and stating that he had seen instances in which it has induced drowsiness, and even sleep, the author analyzes twenty-seven cases, and gives a synoptic table in which the following points are noticed: 1. Name, &c., of intoxicant consumed. 2. Quality and quantity of drink taken. 3. Period of existence of intemperance. 4. Sleep. 5. Hallucinations. 6. Trembling. 7. Other nervous symptoms. 8. Pre-existing disease. 9. Result of the treatment. Ten of the above cases are taken in detail, the results showing the efficacy of the oxide of zinc as a remedial agent. With respect to the treatment, it is not merely necessary for the patient to cease drinking, as the symptoms referable to the nervous system often occurred long after the habits of intemperance had been abandoned, but an active treatment is also absolutely necessary. The oxide of zinc is given in doses of two grains twice a day, in the form of powder, an hour after each corresponding meal. The dose was generally increased in the ratio of two grains every three days, until the patient took six or eight grains twice a day. Thus sleep was soon induced, the trembling of the body and limbs rapidly disappeared, the patient no longer suffered from headache or giddiness, and the hallucinations vanished; and in the course of from three to six weeks the patient had recovered from a long and painful illness. The weakness, a common symptom accompanying the disorder, was very difficult to overcome, and often continued a long while after the individual was quite well in every other respect. Another fact noticed was the complication of chronic alcoholic poisoning with bronchitis and rheumatism, in which cases the effects of the oxide were less marked; and in these instances the functional disturbance of the nervous system often gave way without any improvement

in the coexisting disease. Accordingly, in these cases the author added to the treatment as soon as the effects of the oxide were exhausted. The results of the twenty-seven cases are as follows: Six continued attending; eleven had been discharged, cured; four left the hospital (Westminster), quite recovered; four, much improved; and two ceased attending after the first or second visit. "In cases of chorea, mild hysteria, paralysis, and lead palsy," Dr. Marcet adds, "the use of oxide of zinc gave but unsatisfactory results, and in the majority of cases of epilepsy it could not be considered an effectual remedy."

ART. 25.—On Syphilitic Inoculation.

By Mr. HENRY LEE, Surgeon to the Lock Hospital.

(*Lancet*, Jan. 29, 1859.)

Is it true that a primary syphilitic sore will invariably give rise, through inoculation with its secretion, to a characteristic syphilitic pustule? M. Ricord answers this question in the affirmative; Mr. Lee in the negative.

"In the year 1855," says Mr. Lee, "I published an account of some cases in which, notwithstanding the assertions so unreservedly made, and so generally received, I had not been able to produce any effect by ordinary inoculation. The experiments were tried in this hospital, care being taken to select instances in which the sores had not begun to heal; and amongst the cases were the following:—"

THOMAS C—, æt. 16, was admitted on the 27th of November, with an indurated sore, extending half-way round the margin of the prepuce, causing phimosis. This had commenced a fortnight previously. The secretion from the sore was carefully inoculated on the patient's thigh in several points. The inoculations were followed by no result, and the patient was soon afterwards affected with secondary syphilis.

JAMES G—, æt. 25, had a large indurated sore near the orifice of the prepuce, which had appeared as a pimple four weeks previously. The secretion was carefully inoculated in several points, but without result. Constitutional syphilis followed.

MARILDA P— presented a well-marked indurated sore on the left external labium, which she stated had existed one week only. The secretion, which consisted of a thin serous fluid, was carefully inoculated. No result followed the inoculation.

JULIA B—, æt. 21, had a red, glazed sore on the external labium, surrounded by distinct specific induration. The disease had commenced three weeks previously as a pimple. The secretion from the surface of the sore was inoculated without result.

"Since the period above referred to, we have inoculated the secretion from a considerable number of sores presenting the characters of the specific adhesive inflammation; and as a rule, no result has been obtained where no artificial irritation has been applied. The secretion in these cases, has consisted chiefly of epithelial debris floating in serum, more or less turbid. The character of the secretion of these sores may readily be altered by anything that is brought in contact with them. The application of caustic, or a thick scab which confines the secretion, or a piece of linen which sticks to the sore, will produce a temporary discharge more or less puriform; but dress the part with wet lint for a day or two, and the natural character of the discharge will again be evident.

"As a rule, then, I say—at least that has been our experience at this hospital,—that this kind of primary sore is not, under ordinary circumstances, capable of being inoculated with the lancet; and we, therefore, cannot but come to the conclusion, that those who have maintained that all primary syphilitic sores can be alike inoculated, have generalized too hastily."

But a much more important question remains—namely, does it follow that because these sores are not capable of being inoculated by the lancet, in their ordinary condition, that therefore they cannot be communicated at all? And, if capable of being inoculated, under certain circumstances, are the results

produced identical with those produced by the inoculation of the secretion from suppurating sores?

"In order to determine these questions, I would request your particular attention to some cases now in the hospital, and particularly to that of a boy named A—. The details of this case, and the results of the inoculations performed, I will immediately mention; but before doing so, I would draw your attention to the fact, that in practice, we continually meet with cases which, in their early stages, are similar to the one I am about to describe, and which, with or without treatment, become covered by epithelium, and in which, although the specific induration remains, yet the surface affords no fluid secretion whatever. Inoculation, in the ordinary way, at this period of the disease, would be entirely out of the question. But if a person in the condition I have mentioned gets married, his wife will have a very good chance, even before her pregnancy, of becoming infected with syphilis. Some very distinct cases, where this has happened, have fallen under my own observation. Now, then, is the disease communicated in these instances? We have here a rather numerous class of cases in which the sores have become covered over with cuticle, which yield no pus or fluid secretion of any kind, and yet which are capable of communicating infection from one individual to another. Now, I ask, does the inoculation take place from a sore affected only with the specific adhesive inflammation, either before or after that sore has apparently healed? Some light will, I think, be thrown upon these questions by the careful consideration of the facts presented to our notice in the boy A—, at present in the hospital."

This lad had had gonorrhoea six months before his present attack, but otherwise he had never had any venereal symptoms. His present disease was of about a fortnight's duration. He first perceived a superficial sore behind the corona glands, which healed in a few days. Two or three days after the first appearance of this sore, a little pimple appeared on the outer skin of the prepuce. This was squeezed, and discharged a watery fluid. A sore then formed, which continued to increase. He applied to me on the 26th of July, with a well marked Hunterian chancre. This was of a circular form, surrounded by well marked and accurately defined induration, and discharged a white turbid secretion. This fluid was placed under the microscope, having previously been mixed with a little acetic acid. It contained no pus-globules. The glands in the groin were enlarged and indurated, but not inflamed.

July 27th.—The secretion from the sore was inoculated in several points on the patient's thigh.

29th.—The boy was admitted into the Lock Hospital. The inoculations had been followed by no result. The secretion from the sore was again examined, and found to contain no pus.

31st.—The sore, which continued to increase in size, had been dressed with linen and cold water since the last report. The linen appeared to have irritated the sore in some degree, and numerous globules now appeared in the secretion; but upon the addition of acetic acid, the distinct outlines of the pus nuclei were not visible. Several fresh inoculations were made. The sore was dressed with wet lint.

Aug 3d.—None of the inoculations had succeeded. The secretion from the surface of the sore, placed under the microscope, and treated with acetic acid, did not appear to contain any pus. The sore was ordered to be dressed with blistering plaster. The glands at the back of the neck were now enlarged, and the skin presented for the first time the appearance of a syphilitic eruption.

5th.—None of the former inoculations had been followed by any effect. The application of the blistering plaster had produced a superficial slough on the surface of the sore, and blistered the surrounding skin. Some distinct pus-globules were now visible in the secretion from beneath the slough. This secretion was inoculated upon the thigh in several points.

7th.—The sore now again secreted no pus. Fresh inoculations were performed.

10th.—The sore was dressed twice yesterday with the sabine ointment, and

it now yields a copious secretion of pus. This was inoculated in several points in a fresh place upon the thigh.

12th.—The inoculations last made had succeeded. The primary sore still yielded a copious secretion of pus.

14th.—The sore had been dressed with lint, kept wet with water, since the last report, and now no pus could be detected in the secretion.

The inoculations, both of the 5th and of the 10th, had now succeeded. They presented the appearance of circular red patches, with some elevation and thickening of the cuticle. In one place there was the appearance of a broken vessel, from which a serous secretion exuded. This secretion from the inoculation was inoculated on the thigh.

17th.—The inoculation from the inoculation had succeeded. It presented the appearance of a red circular patch, from which the cuticle was abraded, with slight thickening of the skin. It had not at all assumed the appearance of a pustule, nor was anything like pus secreted from its surface. A single pustule, surrounded with very little inflammation, had formed in one of the points first inoculated. The eruption on the surface of the skin was fading. All the inoculations in this case were made with a lancet used for no other purpose, kept carefully wiped, and wrapped in paper.

19th.—The inoculations appeared as separate red patches on the skin, which in these situations was slightly raised and thickened, but no induration extended into its substance. The solitary pustule which had appeared had dried up. The original sore was healing, but being dressed with the saline ointment, it afforded a purulent secretion, which was inoculated upon a patient who never had had constitutional syphilis, but who was apparently suffering from organic disease of the liver.

21st.—The inoculations presented the same appearances as before; they appeared covered in certain parts with thin scales; they were tender to the touch, with slight thickening on the surface, which did not extend into the substance of the cutis. The inoculations nowhere presented any appearance of ulceration. The inoculation performed on the 19th had produced a small, dark-brown, circular patch, in which the skin was slightly elevated. The secretion from the original sore was now again inoculated on a second female already affected with constitutional syphilis.

24th.—One of the inoculations on the boy has a slight tendency to ulcerate. The others are desquamating and losing their color.

The single inoculation on the first woman unaffected with syphilis has assumed the form of a small red pimple. The redness gradually fades into the color of the surrounding skin. The cuticle at the inoculated part is thickened and elevated.

The inoculation on the second woman already affected with constitutional syphilis is less marked. There is only a slight redness and elevation at the inoculated part.

From the facts which have been brought under notice the following very important points are proved:—

"1. That some primary syphilitic sores cannot readily be inoculated in the ordinary way, either during their period of progress or afterwards.

"2. That the sores which are not capable of being thus inoculated, as far as we have hitherto seen, are those affected with specific adhesive inflammation, and which do not, except under conditions of artificial irritation, secrete pus.

"3. That these sores, although not capable of being inoculated in the ordinary way, will, nevertheless, when irritated, furnish a secretion which is capable of being inoculated.

"4. That the inoculations thus produced do not give rise, as a rule, to either suppuration or ulceration, but to some adhesive form of inflammation.

"The inoculations to which I have now directed your attention, and the results of which may be seen in two other patients now in the hospital, besides those to whom I have above referred, have all assumed a remarkably uniform character. There are many points of the greatest interest connected with this new form of artificial inoculation, which I hope to enter upon at length in one of the courses of lectures which will be shortly given at this hospital."

II. SPECIAL QUESTIONS IN MEDICINE.

(A) CONCERNING THE NERVOUS SYSTEM.

ART. 26.—*Hysteria considered as a connecting-link between mental and bodily disease.* By Dr. W. CAMPS.

(Brit. Med. Journal, March 19, 1869.)

Dr. Camps's object is to draw attention to such forms of hysteria as present marked evidence of *psychical*, in addition to, or complication with, *somatic* affection. Until within a comparatively recent date, it has been the custom to consider mental disease as unconnected with or independent of bodily disease. But insanity is far more a bodily disease than has hitherto been considered; and in cases of this malady there is mostly, if not always, impairment of the proper healthy cerebral structure.

Dr. Camps gives a brief account of the hysterical paroxysm, which is almost, though not exclusively, confined to the female sex. It is, however, in the moral state and motives, which not unfrequently attend or accompany the severer forms of hysteria, that we may recognize without difficulty the approximation of this disease to some of the forms of mental disease. In severe cases of hysteria, amidst considerable general disorder, the nervous system being chiefly involved, the proper functions of the brain often become deeply affected. There is observed in such an increased susceptibility to impressions, a great rapidity of movements, together with a capriciousness of motives; the countenance indicates the alterations that take place in the feelings of the patient; and in the worst cases, the most amiable sentiments are observed to be converted into the most unamiable and repulsive. In some, there appears to be, at times, a complete metamorphosis of the whole moral character. This state of the disease becomes a subject of the deepest importance, more especially in regard to its moral treatment, so far as regards the imposition of personal restraint, or confinement of the patient; for nothing would be more injurious to a hysterical patient in this condition than undue interference with personal liberty. The functional activity of the spinal cord, as well as of the brain, may be morbidly diminished, or augmented, or perverted; and this latter state is especially the condition in hysteria. The perversion of the functional activity of the spinal cord is most marked in some cases, in which there is an extreme irritability of the cord at least, if not of the entire cerebro-spinal axis; and in the severer forms of the disease there doubtless exists an excessive irritability of the whole nervous centres; and it may be, of the entire nervous system, including even the nerves themselves. It might be assumed that the irregular, convulsive, and impulsive actions of hysterical patients, depend rather upon some state of the blood, which alters its healthy relation to the nervous tissue, than upon any structural alteration of the proper nervous tissue itself.

During the last nine months, Dr. Camps has had under his care a somewhat severe and remarkable case of hysteria, which, he thinks, is one that afforded him good reasons to conclude that it, and similar cases, present phenomena that clearly show a connection between mental and bodily disease. The subject of this affection was a lady, above fifty years of age, of a highly nervous temperament, who first came under his notice, presenting many of the ordinary characters of hysteria; but, as the disease gradually developed itself, this patient presented, in addition, many of the characters of a very protracted and aggravated case of this disease. There were paroxysms of choreic movements; at first, chiefly confined to the lower extremities, and to the left side of the trunk; these gradually affected, in a slighter degree, the upper extremities; being attended then with considerable paroxysmic palpitation of the heart, and heavy, labored respiration. Then supervened excessive restlessness of the body generally, so that, when out of bed, the patient was almost always in bodily action, seldom or never sitting, frequently not even when at meals; in motion whilst standing, and very frequently walking hurriedly about in various apartments of the house. This was followed by, and accompanied

with excessive talkativeness, so as to fatigue her companions. When remonstrated with, and requested to be silent, her reply was, "I must talk, for I cannot help it." The subject of her conversation was almost invariably herself, and her peculiar ailment and condition, and this ultimately assumed the form of intense selfishness or egotism. There was no derangement of the special senses, nor of the general cuticular sensation. The disease appeared to ascend gradually higher along the cerebro-spinal axis, and at length to reach the sensory ganglia, and the cerebrum itself; for certain *psychical* phenomena presented themselves at times, bearing the closest affinity to those exhibited in some forms of mental disease. Commonly, the patient slept well during the earlier part of the night, and seldom or never complained of pain in any part of the frame. The faculties of perception and memory were unimpaired, as was the judgment also, in relation to all matters of business demanding close attention; the imagination was in too lively exercise at times, but the will appeared to have lost its controlling power over the current of the thoughts. The patient would frequently remark, "My thoughts master me; I cannot help thinking about myself. I seem at times to have lost the power to think of anything, or of anybody, besides myself." Frequently, but not always, there was great irritability of temper; and this would sometimes be expressed in words, and sometimes in actions. The will having lost its controlling power, the impulses arising from this state of excessive emotional sensibility were occasionally expressed in very irregular and extraordinary phrases and actions of the body.

The view the author takes of this case was, that it is mainly connected with the cessation of the menstrual function. Moreover, in this case, there was excessive irritation, possibly congestion, of the greater part of the cerebro-spinal axis, including at least the sensory ganglia at the base of the brain—a condition of parts sufficient to account for most if not for all the symptoms connected with the nervous system.

Dr. Camps concludes by a brief reference to the treatment of hysteria. The measures recommended are: 1. The use of such agents as improve the general health, and especially the general state of nutrition of the nervous tissue; 2. Of such agents as remove the exciting causes of the paroxysms; and lastly, of all such agents as are likely to act beneficially upon the mental state and condition of the patient.

ART. 27.—On irregularity of the Pupils from central causes.

By Dr. RICHARZ, of Endernich.

(*Jour. of Mental Science, and Dublin Hospital Gaz.*, Feb. 1, 1859.)

Dr. Richarz's views were communicated to the Psychiatric section of the Philosophical Association of Germany. They are translated from the '*Allgemeine z. f. Psychiatrie*,' by Dr. E. Palmer.

"In describing the relative sizes of unequal pupils, in the diseases of the central organ of the nervous system (as in incomplete general paralysis), most observers make special mention of the dilated pupil; and, under precisely similar essential conditions we more frequently find one pupil characterized as being larger than the other, than the converse. Were there no prejudice at the bottom of this custom, there might be nothing to advance against it; but I believe that the views on which it is founded are more or less conjectural. It is apparently assumed, in the first place, that inequality of the pupils is always caused by lesion of one iris only; that dilatation of the pupil is more truly and more frequently a morbid condition, than contraction; and finally, that dilatation is always dependent on relaxation resulting from paralysis. The iris with the dilated pupil is thus more often pointed out as being affected, and that with paralysis, than the one in which the pupil is contracted; and we find, moreover, that it is quite usual to adduce, not, perhaps, mere inequality, but dilatation of the pupils generally, as an absolute sign and example of paralysis of single muscles.

"These hypotheses—certainly not always clearly understood—are, however, completely false. It must be remembered, that both abnormal dilatation and

abnormal contraction may each arise from two totally different conditions of iris—the dilatation either from paralysis of the circular or spasm of the radiated fibres; and the contraction, either from paralysis of the radial or spasm of the circular fibres; so that both irides may be affected, although, as a rule, only one of them is found to be so. Whether lesion is present in both or only in one, and in the latter case in which, can only be ascertained by careful observation. I have noticed, for example, that the difference in size between the pupils, in cerebral disease, does not usually remain the same under all conditions of light; also, that this difference will not probably be at its maximum under a moderate amount of illumination, but under the influence either of a very strong or a very feeble light; and that under the opposite extreme it falls to a minimum, or, indeed, disappears altogether. I speak, of course, only of relative difference, not of absolute, for the latter must naturally be less when the pupils are contracted, than when they are dilated. This, which is the usual demeanor of unequal pupils under various stimulus of light, can only be explained by regarding the lesion as being limited to one iris, and proves, indeed, that such is ordinarily the case. The skilful employment of rapid alternations of very strong and very feeble light, by which only the investigation can be made with exactitude, is hence a very proper and sound mode of diagnosis.

"From the application of this test the following possible cases result, including one, however, which for the most part is non-pathological:—

"I. If, under varied amounts of illumination, the proportional difference between the pupils remains unaltered, while at the same time their absolute size varies in ratio to the strength of the light, both irides must be considered sound, and the inequality of the pupils regarded as arising from simple 'vacuum;' or at least not as central, and not as depending on paralysis or spasm.

"II. If, under the influence of different degrees of light, the proportional difference between the pupils, and also their absolute size, remains wholly or nearly unaltered, both irides must be considered seriously and equally diseased—that with the larger pupil, either from paralysis of the circular, or spasm of the radial fibres; and that with the smaller pupil, either from paralysis of the radial or spasm of the circular fibres. Four possible cases occur here, from combination, viz.:—

"1. Paralysis of the circular fibres in the larger pupil, with paralysis of the radial in the smaller (the most frequent).

"2. Paralysis of the circular fibres in the larger pupil, with spasm of the circular fibres in the smaller.

"3. Spasm of the radial fibres in the larger pupil, with paralysis of the radial fibres in the smaller.

"4. Spasm of the radial fibres in the larger pupil, with spasm of the circular fibres in the smaller.

"III. The last and most frequent occurrence is, that the inequality of the pupils nearly or wholly disappears either under a very powerful or very feeble impression of light. In this case only one iris is affected.

"1. If the inequality disappears under the influence of a powerful light, it can only be due to the contraction of the larger pupil; while, at the same time, the smaller pupil is not at all, or not equally, excited to contraction by the increased stimulus. We have, then, here the larger pupil pertaining to an iris, which is obedient to changes of light—or, in other words, sound; and the smaller, fixed, or imperfectly mobile pupil pertaining to an iris in a state of disease, from—

"(a) Paralysis of its radial fibres, by which the antagonistic circular fibres, which produce contraction of the pupil, obtain preponderance; or

"(b) Spasmodic contraction of its circular fibres.

"2. If the inequality of the pupils disappears, on the other hand, under a very feeble light, this can only be produced by dilatation of the smaller pupil; whilst, at the same time, the larger pupil remains uninfluenced by the diminution of light, or does not dilate in equal measure. Here the smaller pupil pertains to an iris obedient to light—a. c. healthy; and the larger fixed or imperfectly mobile pupil, to an iris in a condition of disease from—

"(a) Paralyzed circular fibres, by which their antagonists, the radial fibres, obtain preponderance; or—

"(b) Spasmodically contracted radial fibres.

"There are thus, in all, nine—or, if the first (non-pathological) is omitted, eight possible cases of inequality of the pupils. When the inequality continues with a certain constancy, the question of spasm can scarcely be entertained. In irides, however, which are equally and similarly affected, chronic spasmodic contraction is not unfrequently observed. The persistent dilatation of the pupils in helminthiasis cannot be explained as proceeding from paralysis, but as due to spasmodic contraction of the longitudinal fibres of the iris, from irritation of the sympathetic nerve. Inequality of the pupils, arising from spasm of the radial fibres of one iris, combined with spasm of the circular fibres of the other, is rare; but most rare is the occurrence of inequality through paralysis in one iris, with spasmodic contraction of the corresponding muscular fibres in the other.

"If, from the above eight possible conditions, all cases of a spasmodic character be withdrawn, as is mostly necessary in general paralysis, there will remain only three for consideration, viz:—

"1. Paralysis of the radial fibres of the iris with the smaller pupil.

"2. Paralysis of the circular fibres of the iris with the larger pupil.

"3. A combination of 1 and 2 with each other.

"The last of these is the least frequent in incomplete general paralysis. In this disease a single iris is much more often affected with paralysis than both; so that, independently of the general palsy, something of an hemiplegic character is usually present. I have further noticed, that when the irregularity disappears under one of the extremes of illumination, it more frequently takes place under the strongest than under the weakest light; so that, contrary to what is generally supposed, the defect is oftener in the contracted pupil than in the dilated one. This fully harmonizes with the observation of Budge ('Movements of the Iris,' &c.), that the 'nerve oculomotorius,' which is known to be the extensor of the 'muscle sphincter iridis,' develops much more nervous force, and can be thrown into activity by a far less amount of stimulus, than the 'nerv. sympath.,' which supplies the dilator muscle. It is therefore, *caeteris paribus*, far more likely, in general palsy, that paralysis occurs in the nerves and muscular apparatus subserving the contraction of the pupil, than in those which effect its dilatation. In this regard the dilator and sphincter muscles of the iris hold the same relation to each other as the extensors and flexors of the limbs.

"Moreover, in inequality of the pupils resulting from central paralysis, the knowledge whether both irides are affected, or only one—whether, namely, the longitudinal fibres supplied by the 'sympathetic,' or the radial fibres supplied by the 'oculomotorius,' are paralyzed—cannot but be of great importance in the diagnosis of the central seat of disease."

ART. 24.—Case of Chronic Hydrocephalus tapped four times. By Dr. WILKS and Mr. BRYANT, Assistant-Physician and Assistant-Surgeon to Guy's Hospital.

(*Medical Times and Gazette*, Dec. 11, 1859.)

CASE.—John Frederick R—, *et.* 9 months, was admitted into Guy's Hospital under the care of Dr. Wilks, June 20th, 1858. His father and mother are healthy, but his mother's father, two brothers and sister, all died of phthisis, and her nephew is the subject of hydrocephalus. His mother's labor with him was natural, and he was born a well-formed and apparently healthy child. When five weeks old he suffered from convulsions, which were occasionally repeated during the following fortnight. His mother, when he was three months old, first noticed that there was fulness at the anterior fontanelle, from which time she states that the head has continued to enlarge; and symptoms indicative of cerebral mischief, such as sudden screaming out at night, fingers clenched over his thumbs while asleep, and occasional attacks of convulsions showed themselves. The head was ordered by Dr. Wilks (whom she attended first as

an out-patient) to be strapped; this was done for the first time on the 30th March, 1858, at which time the head measured twenty-one and a quarter inches in circumference, and this was repeated four times; the child screaming at each time very much, and the mother, being tired of a process which did not prevent increase of the head, requested that something else might be done. While the strapping was being used the child's limbs and body became more developed and plump. Dr. Wilks, in conjunction with Mr. Bryant, determined to tap the head, which was done by the latter at 2 P. M. on the 29th June, 1858, by introducing a trocar and canula at the anterior fontanelle, a little to the left of the median line, after an elastic band had been bound round the cranium. More than five ounces of a transparent, colorless, slightly albuminous fluid of sp. gr. 1004 were allowed to flow, after which the opening was closed. The child did not suffer at all from the removal of the fluid, nor was the pulse, which was previous to the operation 150, affected. The child cried a great deal during the following night. On the 30th of June, 11 A. M., the trocar and canula were introduced at the same spot after the child had been placed under the influence of chloroform, and ℥v. ʒij. of fluid, slightly tinged with blood, but free from flakes of lymph, were drawn off.

July 2d. — ℥iiij. ʒij. as clear as that first drawn, were removed to-day. The child has been pretty well, not fretting so much as it did after the first operation; there is, however, some jerking of the limbs during sleep, and the thumbs are clenched over the fingers.

4th. — It was tapped a fourth time to-day, and ℥iv. of clear fluid removed; the bandage was removed and reapplied, this being necessitated by the side of the head in the front of the left ear, which had been irritated by the strapping, threatening to ulcerate under the continued pressure of the bandage.

8th. — The part alluded to, as well as another spot on the forehead, has ulcerated, and presents an unhealthy appearance. The child seems pretty well, and is quiet.

12th. — Last night the child had an attack of convulsions; the ulcers are very unhealthy, being covered with a grayish slough; all bandaging has been done away with for several days past, and the water dressing is applied to the ulcers.

14th. — The mother left with her child to-day for the country, in order, if possible, to improve its health; and it was heard that the child died a fortnight afterwards. Although the paracentesis failed to afford any permanent relief, it was surprising to see with what impunity the brain bore the successive tapings.

ART. 29. — On "*Ataxie locomotrice progressive.*"

By Dr. DUCHENNE, of Boulogne.

(*Archiv. Gén. de Méd.*, Jan., Feb., March, April, 1869.)

Progressive abolition of the power of co-ordinating movement, and apparent paralysis, contrasting with the integrity of the muscular force—such are the characteristics of the affection which Dr. Duchenne proposes to call "*ataxie locomotrice progressive.*"

Individuals thus affected cannot preserve the erect position without lurching or falling; they cannot walk without support, and with support their legs are thrown about in a very disorderly manner. These disorderly movements, moreover, are most marked when the muscles are required to obey the mandates of the will. They are not accompanied by clonic spasms; they have no relation to chorea; they are evidently not caused by any fault in the muscular contractility, for this, as tested by electricity, is perfect, and the muscles themselves present no tendency to pass into a state of fatty degeneration; they are preceded or accompanied by various signs of disorder, mental and nervous; they get worse and worse, or better and better, in a longer or shorter time—a period varying from some months to several years. It is not easy, indeed, to seize the distinctive features of the affection; but the chief point appears to be, that there are some cases of paraplegia, and other forms of paralysis, in which the power of moving the muscles fails gradually, while the muscles do not lose their

faculty of being moved—a fact which we have not now to learn for the first time, though it is now more forcibly impressed upon our attention by the able investigations of Dr. Duchenne upon the electro-contraction of individual muscles.

ART. 30.—*The pathology and treatment of the Paralysis of Motion.*
By Dr. J. P. BATCHELDER.

(*American Medical Monthly*, Oct. 1868.)

Dr. Batchelder proposes to recover the lost power "by causing the members to perform the motions calculated to produce the changes in the brain. The *members* first, and the changes in the cerebrum next, is the order and method of nature."

There are different conditions of the muscles in paralysis, which, according to Dr. Batchelder, require separate attention; some are powerless, some contracted, some acting irregularly, but, generally speaking, "all concur in disregarding the volitions of the patient."

From these conditions the following indications of cure are deduced:—

1. To restore strength to the powerless muscles.
2. To overcome abnormal contraction in others.
3. To obviate or counteract the perverse action of such as act irregularly.
4. To renovate the will, and reconnect it with the affected muscles.

In the treatment proposed to meet the first two indications, Dr. Batchelder makes use of an "agent inherent in the muscles themselves, called by modern physiologists 'passive contraction.' This power causes a muscle to contract and shorten whenever its origin and insertion have become approximated." Thus by bringing the origin and insertion of the muscles as near as possible together, and retaining them in such a position by mechanical means until this "passive contraction" has taken place, a certain degree of power is restored to the paralyzed limb. The apparatus is occasionally removed and the limb moved in different directions, the attention directed to these movements, the will taught to assist by concentration of effort upon them.

The perverted or irregular actions of muscles are also met by mechanical appliances until the one or the other yield to well directed efforts, which are more or less under the control of the will.

The first three indications point directly to the fourth, which is, in fact, the ultimate object aimed at, viz.: To renovate the will and reconnect it with the affected muscles.

This is effected by educating the will. The passive movements, the mind constantly directed towards them, act through the peripheral brain and gradually produce those cerebral changes which precede consciousness. This being frequently repeated, the will gradually awakens, regains power by degrees, and finally ends by producing those movements which are at first passively made.

ART. 31.—*On Chorea in reference to its connection with Rheumatism.*

By Dr. T. P. HESLOP, Physician to Queen's Hospital, Birmingham.

(*Dublin Quarterly Journal of Medicine*, Nov. 1868.)

The cases related by Dr. Heslop in this paper, fourteen in number, furnish additional evidence that rheumatism has a very frequent clinical connection with chorea, and that it may give both a predilection and afford an exciting cause to the convulsive malady. A rapid summary of the cases in reference to the rheumatic condition is this:—

The first case appears to be dependent exclusively upon an excited emotional state—grief for the loss of friends; had a previous attack. The second gives us no information as to the cause; had been attacked nine months before, and never been quite free from it since; urine of high specific gravity. The third case is stated to have never had rheumatism; and there is a total absence of the ordinary causes of the malady. she is said to have had chest-pains during the attack. The fourth case supervened "shortly after" a general attack of rheumatism; a loud cardiac bruit at the apex was noted; while under obser-

vation, had rheumatic symptoms. The fifth case presented a loud bruit at the apex, and along the left side of the sternum; the urine highly acid, of high specific gravity, was turbid, and deposited uric-acid crystals. The sixth case complicated pregnancy; her mother was very subject to rheumatism; the heart's action vehement, but without bruit; urine, specific gravity, 1015. The seventh case appeared on the subsidence of an attack of rheumatism; a slight cardiac bruit was noticed; copious deposit of urino, specific gravity, 1035. The eighth case complicated pregnancy; serious mitral disease and hypertrophy were found after death. The ninth case is the same as No. 1; it is the third attack; pains in the back and chest; a systolic bruit at the base of the heart and up the sternum, which persisted when movements had disappeared; pain in the præcordial region; specific gravity of urine, 1020. The tenth case exhibits the third attack of the disorder; complained of pain in joints, especially wrists and shoulders, and beneath the mamma; a loud systolic bruit audible an inch below the nipple. The eleventh case is the second attack of the disorder; never had rheumatism, but a systolic bruit existed in the cardiac region, which was unaltered when discharged; urine, specific gravity, 1020. The twelfth case is, probably, a fifth or sixth attack; never had rheumatism; notes of case imperfect. The thirteenth case is as much the history of rheumatic attacks as of chorea; and while in hospital suffered from rheumatic pains in the joints; the cardiac bruit was, probably, both organic and inorganic; when discharged, it had almost disappeared. The fourteenth case was admitted, laboring under pericarditis, with chorea; had never suffered from rheumatic pains; but his father severely so. The fifteenth case appears to have no relation to rheumatism; the heart is said to exhibit "slight irregularity." The sixteenth offers no statement relative to rheumatism, but a mitral bruit was heard at the apex; cerebral symptoms of unusual severity supervened; record of dissection unreliable. The seventeenth case is a second attack; suffered from palpitation of the heart; but the record supplies no information relative to rheumatism. The eighteenth is the same subject as the fifth; three years and a half have supervened between the attacks; nothing is stated about rheumatism; and it is noteworthy that the bruit formerly observed had entirely disappeared, as repeatedly mentioned in the report. The nineteenth case closely supervened upon an attack of acute rheumatism. Remarkable hysterical symptoms appeared during the progress of this case, coincident with a very striking change in the character of the urine. The indications of laryngismus and trachelismus were most formidable, and had relief not been quickly obtained, it would have become necessary to seek it in the operation of bronchotomy. The twentieth case offers, in a very young child, an interesting illustration of the relation of chorea to rheumatism; a marked attack of the latter had preceded the outbreak of the former. In a child three years old, it is difficult to imagine hysterical mobility to have much to do with the causation of the disorder.

(B) CONCERNING THE RESPIRATORY SYSTEM.

ART. 32.—*On the treatment of Croup by "tubage" of the Larynx.*
Dr. Bouchut, Physician to the Hôpital Ste. Eugénie, Paris.

(*L'Union Médicale*, Sept. 6, 1866.)

This mode of treatment consists in the dilatation of the larynx by means of "viroles" or ferrules, which are introduced into the larynx over a catheter, and allowed to remain there, when the symptoms of asphyxia become urgent. In performing the operation, a curved male catheter, open at both ends, and of the proper size, is first introduced into the larynx. This serves as the guide for the "virole." The virole is a cylinder of silver, from one-third to three-fourths of an inch in length, and a little wider at its upper than its lower end. On its outside are two ridges, and the space between them is intended to receive the inferior vocal cord. When the "virole" is in position, indeed, it is completely within the larynx, and it offers no mechanical impediment to the free

ray of the epiglottis and the arytenoid cartilages. In introducing the "virole," a small metallic ring is required to protect the forefinger from the teeth; for in passing it a silk thread is attached, which is allowed to hang out of the mouth.

Dr. Bouchut proposes the treatment by "tubage" as a substitute for tracheotomy, which latter operation he regards as scarcely justifiable. In the long discussion, however, which was provoked in the Parisian Academy of Medicine—a discussion in which many of the ablest physicians and surgeons in the French metropolis took part—it was shown, not only that the statistics of tracheotomy in croup were by no means so unfavorable as they are represented to be by Dr. Bouchut, but that the results of the treatment by "tubage" were by no means encouraging. It was shown, indeed, that "tubage" had been unsuccessful in all the seven cases in which it had been tried, and that in four of these cases (in one with success) it had to be followed by tracheotomy. The report of the Academy, moreover, which was drawn up by Dr. Trouseau, is condemnatory. It runs thus: 1. That "tubage" is of considerable difficulty of execution, and is a dangerous proceeding if the canula be left more than forty-eight hours in contact with the corda vocales. 2. That it is not impossible that this procedure may render some service in certain acute or chronic diseases of the larynx; but the facts thus far published are insufficient to demonstrate its utility in croup. 3. That to the present time, tracheotomy remains the sole measure applicable in croup, when all the medicinal resources have become exhausted.

ART. 33.—On Croup. By Dr. LUZINSKY.

J. für Kinderkrankheiten, Nos. 9, 10, 1857, and *Edinburgh Medical Journal*, April, 1859.)

Dr. Luzinsky, director of the Marienhilf Children's Hospital, Vienna, in a long communication on croup, recommends the following treatment: Every child with a hoarse voice and the peculiar cough, and some fever, must be at once put to bed, and gentle perspiration induced. If now, the voice becomes clearer, the cough looser, and the nose run, the danger is over. Should, however, the unfavorable symptoms continue or increase, and the breathing become more difficult, then more energetic means must be used. 1. To alter the blood crasis. 2. To prevent the localization of the inflammation in the larynx. 3. To prevent laryngeal spasm. 4. To destroy the membranous exudation, and promote its escape. The first indication is fulfilled by the alkaline carbonates, which dissolve albuminous and fibrinous products. Luzinsky gives daily from $\frac{1}{2}$ to 2 drachms of carbonate of potass, dissolved in 2 ounces of water and sweetened with half an ounce of syrup, till the cough becomes soft and loose. The second indication is best fulfilled by the energetic local application of cold. The whole body is well covered, and kept warm and dry, the neck is bared, and assiduously fomented with ice-cold water, the patient getting at the same time a constant supply of ice-cold milk and water in small quantities; this treatment is continued from one to three days, till the inflammatory symptoms begin to yield, when the cold is gradually left off, and more nourishment given. Luzinsky objects entirely to local bloodletting, and where the application of cold is objected to, is in the habit of replacing it by a blister, the size of half-a-crown, on the manubrium of the sternum, which is to be kept open by epispastic. The third indication Luzinsky attempts to fulfil by the free exhibition of opium, acet. of morphia, $\frac{1}{2}$ —1 gr. in two ounces of water, and half an ounce of syrup to be given at longer or shorter intervals, according to the amount of dyspnoea, cough, and restlessness present. To fulfil the fourth indication, Luzinsky sponges the fauces and larynx several times a day with a solution of nitrate of silver, 4—8 gra. in half an ounce of water. When the pseudo-membrane loosens, and the larynx gets filled with tough mucus, impeding the respiration, Luzinsky gives emetics, sulphate of copper 4—8 grs. in 3 ozs. sweetened water, a dessert-spoonful every half or quarter hour. Luzinsky is opposed to tracheotomy, but rather inclined to catheterize the trachea.

Among 38,000 patients, Luzinsky has had 90 cases of croup (55 boys, 35 girls), of whom there were—

Under 1 year old, 11	4 to 5 years old, 9
1 to 2 years old, 16	5 to 6 " 15
2 to 3 " 16	6 to 7 " 14
3 to 4 " 8	9 " 1

Of these 90 cases only 15 died. Luzinsky groups them in three divisions. The first—characterized by persistent rough voice, short, raw, barking cough, difficult breathing, with occasional sibilant r le, and more or less fever—were 36 in number, and all recovered. The second division comprehended all cases marked by a weak, thin, shrill voice, hollow tubular cough, laborious respiration, feeble and often hissing respiratory murmur, and great restlessness; of such there were 43, of whom 34 recovered, and only 9 died. In the third group the voice was reduced to a faint whisper, the cough choked and scarce audible, and there was great orthopnea; of such there were 11, of whom 6 died. The result speaks favorably for the practice.

ART. 34.—Glycerine as a local application in Croup.
By Dr. E. R. MAYER.

(*Amer. Jour. of Med. Science*, April, 1858.)

In this paper Dr. Mayer refers to two severe and well-marked cases of croup occurring within a few days of each other. The one in a boy eighteen months old, the other in a girl four years old. In both the disease was developed during the decline of the eruption of measles. Suffocation seemed imminent in both cases. The treatment consisted in prompt emesis with sulphate of copper, by which the severity of the symptoms was mitigated, and afterwards, in the rapid introduction of calomel into the system; the use of from one to three grains of sulphate of copper, dissolved in water, every two or three hours, alternated at the same intervals with tartar emetic in nauseating doses, or the still more effective sedative, the veratrum viride, in doses of from two to four drops of the fluid extract; small blister over the upper part of the sternum, and the application of pure glycerine to the glottis, whenever its use was indicated by a return or increase of the brassy, ringing cough, or crowing respiration. The application of glycerine was in each instance soon followed by a manifest softening of the sound of the breathing and cough, and a considerable reduction of the dyspnea and general distress. This improvement usually lasted for a few hours, but by applying the glycerine at short intervals Dr. Mayer found that he was able to afford the patient an amount of permanent relief throughout the disease. In the younger of his patients expectoration of softened false membrane in shreds and patches, "a genuine *detritus*, mixed with altered mucus and a little dark blood," took place twenty hours after the application of glycerine was commenced, and in the other patient on the fifth day of the attack. "The croupy symptoms did not entirely disappear in either case until a day or two after the expulsion of the false membranes, but the patients were soon convalescent. Expectoration was promoted and recovery hastened by the administration of small doses of quinine and of chlorate of potassa with syrup of senega."

Dr. Mayer applies the glycerine by pressing down and drawing forward the tongue with the finger, and squeezing the contents with a long, thick camel-hair brush, dipped in the liquid, over, as near as possible, the chink of the glottis, and then swabbing the whole throat. A sponge or portion of charpie may no doubt be preferable in some cases to the brush.

ART. 35.—On Rheumatism of the Diaphragm. By Dr. CHENEVIER.

(*Gazette des H pitaux*, No. 35, 1859.)

After reporting several cases of this disease, the author gives the following description of it. The disease commences with a sudden pain at the points of attachment of the diaphragm, which produces a feeling of constriction at the

base of the thorax, but is not augmented on pressure. Deep inspirations are impossible, and respiration is carried on only by the superior ribs. Percussion is normal, and auscultation does not reveal any change in the respiratory murmur which is only somewhat weaker at the base of the thorax; there is no cough; sometimes, however, a painful hiccough. The abdominal organs offer no symptom of disease. The attack lasts from one to eight hours, and disappears then without leaving any trace. The prognosis is favorable. Rheumatism of the diaphragm is easily distinguished from inflammatory diseases of the lungs by the absence of the symptoms of the latter. It could only be mistaken for a neuralgic affection of neighboring organs, as, for instance, intercostal neuralgia; but it is sufficiently distinguished from it by the pain being felt particularly in the three characteristic points, while in the neuralgia just mentioned it is confined to one side. From angina pectoris it is distinguished by the peculiarity that the pain proceeds in this malady from the sternum and radiates on one side to the arm. In nervous asthma, which also sometimes with sudden difficulty of breathing, the peculiar feeling of constriction as well as the confinement of the respiratory movements to the superior ribs, is not noticed; the two latter symptoms are pathognomonic of rheumatism of the diaphragm.

* The treatment of the disease consists in the application of cups, mustard pastilles, anodyne embrocations, and chloroform; if it is obstinate, the endermic application of morphia will be useful.

ART. 36.—*On the use of small doses of Morphia in Hooping-cough.*

By Dr. C. M. MÜLLER, of Berlin.

I per Kinderkrankh., Nov. and Dec. 1857; and Dublin Quarterly Journal of Medicine, Feb. 1859.)

"The idea of employing morphia in the hooping-cough of children was suggested to me by the perusal of an essay published in the 'Medico-Chirurgical Transactions' for 1854, by Edward Smith, of London. In this paper the author endeavored to show that when death occurs in hooping-cough, the fatal result is usually due to bronchitis, and is not produced in the mode in which it ordinarily takes place in the so-called zymotic or acute diseases, depending on a poisoned state of the blood, scarlatina, measles, smallpox, &c. It is possible that hooping-cough may have a certain degree of affinity with these diseases. Many circumstances favor such a view, particularly the facts that it usually occurs only once in life; follows a definite typical course, divided into stages of increase and decline; and, finally, the examples of communication by contagion, which have been brought forward. The latter may, however, be deceptive, more, as is well known, under our social circumstances, the occurrence of contagion, for which direct contact is not absolutely necessary, cannot easily be proved with certainty; and, on the other hand, we are aware of the absence of all so-called crises, or critical excretions, which occur so decidedly and characteristically in scarlatina, measles, and smallpox, particularly through the skin and kidneys, and also through the mucous and serous membranes. But to establish a connection between hooping-cough and these diseases, we should be able to prove intoxication of the blood. Such proofs are, however, wholly wanting. We see no particular affection of the skin, no specific derangement of the kidneys, no indication of cachexy or dyscrasia. What we do see is pre-eminently a peculiar nervous affection connected with bronchitis; and did I venture on a systematic nosology, I should be rather inclined to place hooping-cough either among intermittent fevers, or in the great class of neurasthenias to which epilepsy, chorea, &c., are referred. In the treatment of hooping-cough we must bear the nervous element prominently in mind. To this we are compelled, whatever theory we may hold in respect to the disease. If we succeed in removing that which distinguishes pertussis from an ordinary bronchitic cough, or, in other words, if we succeed in changing the affection into a common catarrhal cough, we are content. We consider then that our work is done; and yet what is removed is nothing more than the purely nervous element. Experience has shown that all the influences which are capable

of stimulating and increasing the renal function act favorably on hooping-cough, as fresh air, a regulated diet, attention to the bowels, &c. Having in the latter point of view duly acted on the liver and intestinal canal, we must now endeavor to exercise a direct influence on the peculiar affection of the nerves, which presents itself in hooping-cough. Dr. Smith, whose essay I have mentioned, is quite of the same opinion, and, as I have done, has directed his attention, not to belladonna or hemlock, aconite or henbane, but to morphia. I consider that none of these narcotic remedies is so much to be relied on as morphia; and belladonna, moreover, to be dangerous. 'I endeavored,' says Dr. Smith, 'to ascertain in what doses morphia may be given to children without affecting the head, and how far the dose may be continued. In these investigations I did not consider it advisable to proceed too slowly and cautiously, and I therefore increased the dose steadily until I had attained the maximum. If I had begun with the sixty-fourth part of a grain, as I should do with a child of four months old, I would by degrees give an additional dose, and at last administer three or four doses together every four hours; and if no drowsiness came on, I would augment the dose to one forty-eighth part of a grain, and go even still farther, until a slight degree of narcotism should be produced. But if the slightest degree of narcotism or drowsiness occurred, I would, for two days or less, adhere to the dose I had attained to. Under this treatment the spasmodic hoop gives way, and after three to ten days' use of the morphia, will have entirely disappeared, while the cough will have assumed an ordinary character. In many cases I found an evident improvement even on the second day, and on the fourth the hooping-cough had quite lost its specific character. I do not consider it necessary that the morphia should always be given so far as to affect the head, but the dose must be at least once increased to that point, because only in this mode can the measure of the influence of the remedy be obtained.'

"I have in my own practice obtained precisely similar results. I have commenced in very young children with the sixtieth part of a grain of morphia, and have increased the dose to the fortieth, or even to the thirty-sixth part of a grain, until a slight degree of narcotism or drowsiness has been manifested, and I have then persevered with the same dose until the hoop has quite ceased. My experience of the remedy is such as to enable me conscientiously to recommend this mode of treatment to my colleagues; and what Dr. Smith says on the subject is likewise very encouraging:—

"In hospital and private practice," he says, "I have repeatedly used morphia in hooping-cough, and always with a satisfactory result." It is, however, necessary, as Dr. Smith also points out, that the diet and state of bowels of the children should be strictly attended to. It will be necessary to combine with the morphia treatment, according to circumstances, the use of aperients or of tonics. Attention must also be paid to the due ventilation of the rooms in which the children are kept."

ART. 37.—*On the Treatment of Hooping-cough.*

By Dr. JAMES WHITEHEAD.

(*Third Report of the Clinical Hospital, Manchester, Churchill, pp. 117, 1859.*)

"Notwithstanding the notion, extensively prevalent, that hooping-cough is uncontrollable by remedies, or that it can be benefited by change of climate, there is," says Dr. Whitehead, in the very excellent report from which these remarks are taken, "no reason to doubt that, if brought early under treatment, the symptoms may not only be moderated, and other contingent diseases warded off, but its duration may be materially shortened. Enough has been already said on the subject to substantiate this assertion. The 55 cases brought under treatment, after an average duration of more than three months, were all cured in less than twenty-five days in the aggregate, and would, doubtless, have experienced the same beneficial result, and in about the same length of time, had they been brought six or eight weeks earlier.

"This assertion is further borne out by this fact, that of 57 cases brought for treatment within fourteen days of their commencement, the time occupied

by the treatment was still the same as that of the general average, but the whole duration of the complaint was only thirty-seven days, that of the whole number, excluding the neglected cases, being forty-two days, and the term of the decidedly neglected cases, 111 days.

"Further, of the 87 cases above named, 32 had an average existence of eleven days, in which the whole term of the complaint was thirty-five days; and, of 55 cases, with an average existence of five days on admission, the whole term was reduced to thirty-two days.

"The remedies employed were, in the simple cases, or when the complicated cases had been reduced by other treatment to this condition, Dover's powder, alone or combined with camphor, camphor inhalations, emetics, belladonna, and local irritants; but always with either opium (Dover's powder) or belladonna as a principal remedy. Sometimes the Dover's powder was replaced by another of opium, given in camphor or other aromatic water. The general modes were thus reduced to the *opium treatment* and the *belladonna treatment*, the results of which are as follows:—

"Opium was commonly given in form of Dover's powder, in doses of one grain (containing one-tenth of a grain of pure opium), or one or two drops of the tincture in aromatic water, twice or thrice daily. Frequently, the Dover's powder was combined with an equal quantity of camphor, and sometimes with half or a quarter of a grain of calomel, twice or three times a day, for a child twelve months old. This mode of treatment had an excellent effect in many cases. An equally successful result was often obtained by an emetic (5 grains or more of ipecacuan powder), given in the morning, and 2 grains of Dover's powder, with or without camphor, at bedtime, no other medicines in the interim. By these measures, 58 cases were treated and cured on the average in 28 days.

"Belladonna was used in 76 cases. It was given in form of powder of the leaves, never the extract, as this is an uncertain preparation; and sometimes in form of solution of the nitrate of atropia. When in the form of powder, half a grain, mixed with five grains of sugar, was given to a child twelve months old, twice a day; then, after two days, if well tolerated, three times, then four times a day or oftener, and in larger doses, being gradually increased until a specific effect was produced. The solution of nitrate of atropia was prepared so as to contain one-ninety-sixth of a grain in a teaspoonful of the liquid, this dose of the salt is equal in its therapeutical effect to about half a grain of the powdered leaf, so that a teaspoonful of it may be given twice or thrice daily to a child twelve months old.

"The specific effect alluded to, called *atropism*, consists in an assemblage of phenomena which the system displays when charged with the remedy to a certain degree of saturation, analogous to iodism, pyalism, or quininism. These symptoms are: dryness of tongue and fauces, with thirst; slight dyspnoea; redness, and sometimes puffiness of the skin of the features, neck, and chest; occasionally, but not always, dilatation of the pupils; and now and then slight giddiness. It is not necessary, in all cases, to push the remedy to this pitch in order to obtain a curative effect; but in those who bear the remedy well, and in whom atropism is speedily induced, the disease, even in its severest form, and although in the stage of increase, is at once arrested, and, with due precaution, does not relapse. Thus, in several instances, brought early under treatment, in which atropism was brought about in the space of a few days, the duration of the attack was reduced to twelve, sixteen, or twenty days.

"Of the 76 cases treated by belladonna, 9 were very irregular in attendance, the treatment often being interrupted for a week or ten days at a time. In the other 67 cases, in some of which the attendance was also irregular, the average duration of the treatment was 22 days, giving a decided preference to this remedy.

"It is highly probable that were the belladonna treatment early adopted in each case, and associated with suitable hygienic regulations, the duration of the disease might be reduced from its average of 42 days to that of 28 or 30 days, and both its concomitant and consecutive accompaniments be materially lessened.

"The tolerance of belladonna is different in different subjects, and is probably as great in the young child as in the adult. While a few half or quarter-grain doses will suffice to atropize one, another will bear it for a length of time, in high doses, if augmented gradually. In a child four and a half months old (case 170), on the fourteenth day of the attack, a quarter of a grain was followed by alarming atropism. On the next day, the symptoms having subsided and the hooping being relieved, another such dose was given, and followed by symptoms still more violent than the first. Further trials were not made. In contrast with this, in case 52, a child two and a half years old, the dose was increased from half a grain, twice, to six grains, five times a day—thirty grains daily—before a crisis was brought about.

"The value of some other modes of treatment will in future be tested.

"The diet of a patient laboring under hooping-cough should be carefully regulated. An error in this way is quite enough to aggravate or prolong the disease, or to cause a relapse after it has been absent many days. The aliment, whether animal, farinaceous, or vegetable, should be in the liquid or semi-liquid form, and such as is easily assimilated. The alimentary mucous membrane being in a highly irritable condition, the presence of solid food can with difficulty be tolerated, and often occasions great disturbance. A meal of solid food will often aggravate the paroxysms both in severity and frequency, and may induce a relapse after a cessation of several days or weeks. By a similar kind of sympathetic irritability the presence of worms in the intestines will aggravate the symptoms or prolong the duration of hooping-cough almost indefinitely; in several instances in which the symptoms continued unabated unduly long, and where it was found that worms existed, the expulsion of these parasites was immediately followed by mitigation of the paroxysms, and speedy cure."

ART. 38.—*Rules for the Dietetic Treatment of Asthma.*

By Dr. HYDE SALTER, Assistant-Physician to Charing Cross Hospital.

(*Lancet*, Nov. 6, 1858.)

1. The tendency of food to produce asthma is greatly increased by the state of sleep; therefore, nothing should be taken after such a time as digestion and absorption may be completely over in the stomach and small intestines, and even the bowels quite empty, before bedtime.

2. This long fast before sleep involves a long period of inanition; therefore the asthmatic should break his fast early and heartily.

3. The quantity of food the asthmatic takes should be small; therefore it should be highly nutritious.

4. As a rule, the tendency of food to produce asthma is in direct proportion to its general indigestibility; therefore the asthmatic's diet should be of the simplest and plainest kind.

5. But there are some articles of diet that have a special tendency to produce asthma; therefore from these the asthmatic should exercise the strictest abstinence.

ART. 39.—*On the Prognosis of Phthisis.* By Dr. E. LATHAM ORMEROD, Physician to the Sussex County Hospital.

(*Brit. Med. Journal*, Dec. 25, 1858.)

"I believe," says Dr. Ormerod, "that there are two forms under which tubercle may be deposited in the lungs, two anatomical types of pulmonary phthisis, according as the disease is limited to the apex or diffused more generally throughout the lung. And the prognosis is more favorable, *ceteris paribus*, according as the case approaches nearer to the first of these types. The prognosis, however, does not rest exclusively on the physical signs; separately, indeed, the constitutional symptoms have much more value than the local signs in the question of prognosis. But the two classes of signs taken together enhance each other's importance, and possess a value collectively which neither can separately lay claim to. Thus—to suppose extreme cases—a great degree

of constitutional disturbance, with a hurried pulse and a loaded state of the arms, is of the most unfavorable import, though the local changes be seemingly very slight, more especially if they be diffused over a wide extent of the lungs. On the other hand, slight constitutional disturbance may justify us in entertaining a more hopeful view of a case, though the local signs point to an advanced stage of the disease, if these changes be limited to the apex.

Sharing fully in the abstract belief of the curability of phthisis, I share equally in the conviction of the very delicate nature of the evidence on which that belief rests. The more perfect the separation, the more completely is the proof of the previous existence of the disease removed. The more evident the physical or other signs, the less likely is reparation to ensue at all. It is only in the doubtful cases that there is much room for hope as the general rule; only in very exceptional cases is this hope realized.

Speaking from the clinical observation of phthisis, however quiet and unstable the disease may seem up to a certain point, still we always find that some obstacle prevents our quite removing the disease. It is betrayed, may be, by none but curable symptoms. But we can get no further than the cure of these symptoms. And, without constant care, the disease will put on the ordinary character of phthisis, and other symptoms will develop themselves, which we cannot cure.

If, resting on anatomical distinctions, we point to cavities where ulceration has been superseded by reparative action, or to harmless calcareous concretions replacing tubercular nodules, the difficulty meets us still. The very grounds on which we are arguing, show the incompleteness of the repair of the disease. The details I have given are but samples of many others, which each one from his own experience might supply, showing how far these conditions are from a cure. Nor can such a result, in the lowest practical sense of the word, be obtained even by the sacrifice of the organ affected—by collapse of the lung. We may set the tubercle at rest, perhaps. We may even, under favorable circumstances, reduce the injured parts to a condition differing little from the results of ordinary disease. But the most gratifying results obtained in this way would fall very far short of perfect success. For even to heal the mischief already done to the lungs, could we do this much, were not enough to constitute a real cure in the majority of cases. For the pulmonary disease, in the majority of cases, is but a part of phthisis."

ART. 40.—*On the management of the Shoulders in examinations of the Chest.*—

By DR. CORSON, Physician to the New York and Eastern Dispensary.

(*New York Journal of Medicine*, March, 1859.)

The following is a summary of an elaborate paper in which Dr. Corson endeavors to show that by a proper management of the shoulders of the patient we may add fully one-third to our power of detecting the earliest signs of consumption.

1 That, remembering the great value of many reputed "little things," in the science of saving life; and that the chests of *lean* persons give the clearest sounds, and are best marked—we may seize this hint from nature, and increase the "physical signs," by either lessening or removing more especially those principal natural obstacles, the great pectorals in front, and the two scapulae and their muscles behind.

2 This may be effected by using the arms as levers, and the hands as hooks to pull. The process, in each case, involves three principles—*throwing, condensing, and tightening.* It is illustrated by the simple experiment of placing one forearm of a muscular man behind his back, while the other hangs loosely by his side, when the sound, especially of percussion, will be found heightened below the clavicle of the stretched in front.

That the suggestions here offered are not fanciful theories, but the results of practical observations on several hundred patients in private, and in two large dispensaries, during the past year. To throw back the shoulders, and bare the whole front, we need the "*first position.*" It is a repetition of the above experiment with both arms. *The left wrist is simply held easily with the*

right hand behind the loins. This has many little advantages in obscure cases. It gives symmetry, gets rid of the arms, and fits the coat of flesh closely, like a bandage, for "inspection," makes it tense to increase the resonance of delicate percussion, and *conducts* better the sounds within. It thus aids in distinguishing the more difficult cases of tubercles, pleurisy, pneumonia, or aneurism.

4. That the "second position" is the common one of locking the hands over the head to examine the axilla, and is mentioned to avoid omission. The *third position* crosses the arms at the back of the head, with the hands grasping near the elbows, so as to *hoist* the shoulder-blades high up behind, and *thin* the muscles, to search for obscure or limited pleurisy or pneumonia low down near the diaphragm posteriorly.

5. It is very important early in suspicious cases of cough, to examine carefully the *tops of the lungs behind.* For without any distinct signs in front, consumption, often thus mistaken for a mere throat-affection, begins here. A few scattered tubercles are apt to *burrow*, as it were, beneath the top of the shoulder. Here we need the "*fourth position.*" For this the patient crosses his arms in front, slightly stooping, *hooks* the hands at the loins, or false ribs, and then stretching upward, he holds fast to increase the tension. The physician aids from behind, by pressing down firmly the shoulders. They are thus *slid off*, the muscles are smoothed down, and the ear coming closer upon the top of the lung, hears better the sounds.

6. *As worth more than all the rest,* we commend the "*fifth position.*" for by natural machinery it wrenches the shoulders forward out of their beds, and widely severs them in the rear. In thin persons it often thus stretches out their intervening muscles till, like stout broadcloth, it thus quite uncovers the inner and upper part of the lungs behind. To accomplish this, the patient crosses arms in front, with the stronger outside, grasps with the opposite hands the *two shoulder-joints*, pulls both strongly, and holds fast to keep them tense. The physician aids to fix the shoulder-blades widely apart at the back by firmly pushing. Even in health, as any one can prove, the soft breathing murmur at the former place of the scapula can be thus nearly doubled. In tubercles it here opens a new field for *palpation*, and especially for *percussion.* It intensifies harsh respiration, or "fatty crackling." In pneumonia, it exaggerates the clear, barrel-like echo of "bronchophony," and in pleurisy that one between wind and water, the trembling "egophony." It brings out a delicate *new sign*, we have discovered, in bronchitis. It is a kind of prolonged liquid breathing, as if through a layer of wet sponge, heard before or after mucous rales, which we venture to name *moist respiration.*

7. Another new and really useful "physical sign" we have to communicate, is the *comparative stiffness of the shoulder over the lung most diseased, in strong breathing, seen and felt from behind.* For this we may use the "*sixth position.*" Facing the back of patient, a yard distant, near a window or white wall, you tell him to drop his arms, let them hang easily by the sides, "as if dead," and then breathe deeply for a few moments, "like a man a little out of breath." You now "take aim," like a rifleman, across the top of the shoulders, and then shut your eyes and *feel* them gently swell. Drawing nearer, you notice that the "inferior angles" of the scapulae move gently in breathing like the fins of a fish. You can both *see* and *feel* this movement. This *stiffness* of the shoulder in breathing may be decided or slight, local or general. When most at the top, we term it for convenience "acromial," and when most at the lower extremity, or inferior angle, we call it "angular." Curiously enough, these last features seem to depend on the higher or lower location of the disease which thus, as it were, *paralyzes the parts nearest.* An elegant way of testing "angular stiffness," even in a lady fully clad, is to place your two index fingers on the lower points of her shoulder-blades, and watch and feel their movement as she sighs. The causes of this stiffness are supposed to be *loss of upward expansion* in the lung, tenderness, pleuritic adhesions, and weight of morbid deposits. A table of eighteen cases is added, illustrative of this sign. It was least in recent attacks, varied most in phthisis; was slightest in pneumonia, and greatest in chronic pleurisy.

8. A statement of measurements of ten males, shows the gain in inches, and decimals, by "third," "fourth," or "fifth" positions respectively, between the inferior angles of the scapula and the lowest lumbar vertebra; the "superior angles" and the vertebra prominens of the neck and between the two upper and two lower angles of the scapula. Of the whole of the six positions, the first, fourth, fifth, and sixth are the most frequently useful. The others apply to particular cases. Taking into account the pulmonary complications of *various diseases* as well as the range of "chest-disease," it is believed that these various measurements, slight as they seem in detail, really throw light, perhaps, upon many forms of *one-third of the fatal maladies of the race*.

9. On account of its fearful importance, it is hoped they will mainly benefit *tubercular consumption*. Tracing faithfully, by various "marks," and the un-healthy habits of the patient, the agencies leading to the two prevailing causes, *feeble organization and depraved nutrition*—by prompt reform of abuses, *excesses animal food*, and free exercise in the *open air*, with tonics and *cal-umnies*—we may do much to arrest the disease. *Occasionally, we may cure*. The encouraging researches of Hughes Bennett and Messrs. Rogée and Lill let show that from the numerous chalky concretions, puckerings, and cicatrises found at the tops of the lungs in very aged persons, it is probable that *about one-half have recovered* from more or less tubercular deposits during their lives. Four living cases from several others are reported by the writer of arrest or cure of phthisis of several years' standing. The great question of this paper then is, *What may be the result of average notice, say three months sooner?* Time only can tell. Each physician who reads this is earnestly requested to aid by a faithful trial of this system of examinations in at least *three suitable cases*. The malady is still widely and deplorably fatal. From extensive trial, we greatly believe that, simple as they may seem, this *management of the chest*, does, *these expedients for thinning, condensing, and tightening the fleshy walls of the chest*, add *fully one-third to our power of detecting the earliest signs of consumption*.

ART. 41.—On interrupted or Jerking Respiration.—By Dr. A. BOURGADE.

(*Archiv. Gén. de Méd.*, Nov. 1858.)

Dr. A. Bourgade attaches much importance to interrupted or jerking respiration (*respiration saccadée*) as an early sign of pulmonary tubercle, and he enters his opinion by the narration of nine cases in which this sign preceded all others. Interrupted or jerking respiration, he tells us, is heard principally during inspiration; and, as a rule, it ceases to be audible when the expiratory murmur has become distinctly prolonged, or when other unmistakable signs of advancing disease have made their appearance. Under any circumstances, it varies much in force and distinctness, and in some instances it may only make its appearance occasionally at intervals of greater or less length.

(C) CONCERNING THE CIRCULATORY SYSTEM.

ART. 42.—Pericarditis caused by a foreign body in the *Œsophagus*.—By Dr. BERT.

(*Charlotten Med. Jour. and Rev.*, Jan. 1859.)

CASE.—The patient in this case swallowed two artificial teeth and the plate belonging to them. On the day following he complained of sharp pain in the *stomach*, but only for a short time. Five days later the epigastric pain returned, and along with this there was much fever and obstinate vomiting. The day following there was delirium and evident signs of sinking. Death happened shortly afterwards. In the autopsy, the stomach was a good deal inflamed in the neighborhood of the pylorus, and the pericardium was inflamed and its cavity filled with fetid gas, and a greenish sero-purulent liquid. The artificial teeth and their plate had stuck in the *œsophagus* a little above the opening of the stomach, and it had made a distinct perforation through the anterior coats of the *œsophagus* and the posterior aspect of the pericardium.

ART. 43.—Treatment of Acute Anæmia. By Dr. JAUZER.

(*Prager Vierteljahrssch.*, Bd. 4, 1859, and *Edinburgh Medical Journal*, April, 1859.)

According to Dr. Jauzer, the immediate danger of death from sudden loss of blood may be averted by artificially restricting the circulation to the trunk and head, laying the body horizontal, and elevating the limbs and compressing the femoral artery against the ilio-psoas tubercle, and surrounding the limbs with a firm bandage. The chief difficulty lies in the length of time during which the compression may be necessary ($\frac{1}{2}$ —12 hours.)

ART. 44.—On the occurrence of a blowing sound in the Pulmonary Artery. By Dr. J. DA COSTA, Lecturer on the Practice of Medicine in the Philadelphia Medical Association.

(*American Journal of Medical Sciences*, Jan. 1859.)

In examinations of the chest, Dr. Da Costa has met with a blowing sound in the second intercostal space on the left side, the occurrence of which has only been imperfectly attended to. The sound is heard in the exact course of the pulmonary artery, and especially at a point corresponding to the bifurcation of its left branch; and there is every reason to believe that it must be referred to this vessel. Dr. Latham, long ago, pointed out the occurrence of a blowing sound at the upper part of the left lung in persons who were undoubtedly tubercular, or suspected of being so, and Dr. Da Costa's object is chiefly to recall attention to the forgotten observation, to explain its cause. Dr. Da Costa relates eight cases, in all of which local signs of partial consolidation were met with, which consolidation, he thinks, might prevent the vessel from fully and equally distending, and thus give rise to a murmur; and this explanation has every appearance of probability, for in no one of the cases could the murmur be referred to anæmia, or to the presence of local obstruction in the vessel, nor could it be supposed to be transmitted from the heart.

"The physical sign in question," says Dr. Da Costa, in his description of it, "may be stated as being a murmur attending the impulse of the heart, almost always soft and low-pitched, although occasionally harsher, of higher pitch, and simulating a sibilant rûle. Its situation is in the second intercostal space on the left side, not an inch from the edge of the sternum. It may be audible higher up, or opposite the third rib, on the sternum.

"All blowing sounds in the heart or in arteries are due either to a peculiar condition of the blood, or to the presence of local obstructions; or, again, they may be transmitted. This latter supposition cannot be entertained, as there was no murmur anywhere to be transmitted, the heart in all the eight cases yielding perfectly normal sounds.

"The space it occupies is usually very limited, and can be accurately circumscribed with the stethoscope. It is not heard during a full inspiration, but very distinctly after inspiration, or with expiration. It takes the place of the first sound at the spot where it is heard, but is followed by a distinct second sound. When the patient is breathing quickly, and the heart's action excited, it is best distinguished. It is not always of equal distinctness or of equal pitch, but it is not transitory, as it may be observed extending over a long space of time. The sounds of the heart are not influenced by it. They are heard with the usual clearness at the apex, immediately above the ensiform cartilage; at the third rib, or second intercostal space, on the right side; at mid-sternum; and even at the third costal cartilage and edge of sternum, on the left side. At this latter situation the second sound is distinctly heard; the occurrence of the first is more difficult to perceive and more doubtful."

In the course of this inquiry two points arise on which some light may be thrown by a comparison with phenomena in health. The blowing sound took the place of the first sound over the pulmonary artery. What are the natural sounds heard there, and how produced? Secondly, full inspiration prevented the sound from being heard. What is the effect of full inspiration on the sounds of the artery? In answer to these questions Dr. Da Costa proceeds:—

"For the purposes of an accurate standard in examinations of cardiac affections, I have studied and compared with each other, with care, the heart-sounds in the different portions of the organ, and also the effect of the respiration on them. I shall insert here as much as is relevant to the subject of the consideration of sounds in the pulmonary artery, merely adding that the usual clinical positions have been selected—the second intercostal space near the sternum, on the right side, for the aorta; on the left, for the pulmonary artery; whilst the sounds at the apex have been studied a little above the left apex, and above the ensiform cartilage. Where the term apex merely is used, it is meant to apply to the apex beat on the left side of the heart, between the fifth and sixth ribs.

It is seen, from an examination of twenty cases, that the first sound of the pulmonary artery is usually dull, of low pitch, and, in certain cases, more like a vibration than a sound, or so indistinct as hardly to be perceptible. Compared with the first sound of the aorta, it is equal in a certain number of instances (it was in six out of eighteen in the table); but when it differs (in eleven out of eighteen), it is noticed to be less distinct, less sharp, although it is in some persons a rather longer sound. Compared with the first sound at the apex of the heart, it lacks the weighty, prolonged, marked character of this sound. If the stethoscope be carried up from the apex of the heart to the second interspace, the difference is observed to be very marked; the change of sound occurs almost abruptly. It seemed to me, also, as if a decided change in pitch took place, but I do not wish to speak too positively on this point, as it is a very difficult matter to distinguish changes of pitch in sounds, both of which are dull, and one very indistinct. Compared with the first sound over the right ventricle (above the ensiform cartilage), the first pulmonic is of a much duller character, and decidedly less sharp, and not of as high a pitch. In this respect the difference—not merely in the above observations, but in others I have made—was noticed as much more decided than between it and the first sound over the left ventricle; the one on the right side being, although less strong and shorter, usually clearer, and of higher pitch even than this.

These analyses, showing that the sounds of the heart, listened to in different positions, differ in character, are thus in favor of the view that the first sound of the heart, as heard over the arteries, is not merely a transmitted sound, but is one which—to a great extent, if not entirely—is generated by the action of the vessels themselves during their diastole. They would further tend to show that the first sound of the heart, as heard over the apex on the right side, is not transmitted from one side to the other, but is formed by each ventricle separately.

As regards the second sound in the pulmonary artery, as compared with the second aortic sound, it need only here be said that the latter is usually far stronger and more accentuated. Out of the eighteen cases compared, it was stronger in fifteen, equal in two, less marked only in one.

A second point with reference to the blowing sound capable of being somewhat imitated by a comparison with health was, why was it inaudible during a full inspiration, and so marked in expiration? The cases given, by exhibiting what effect a full inspiration has on the sounds of the heart in health, will explain it, especially if, in addition, it be borne in mind that the sound is sometimes of the same pitch as the inspiratory murmur, and that in expiration the heart's action is quickened. Ten young adults were selected, whose hearts, as far as the extent of percussion, dullness, rhythm, and impulse, proved, were perfectly normal.

These observations, which have been repeated on other cases with similar results, show, then, the effect of a full inspiration on the heart sounds to be an almost entire disappearance of the sounds heard at the interspace between the second and third ribs on the left side, and a very great, but not as marked as, diminution of the sound at the aortic cartilage. At the apex, the first sound lessens very much, and becomes in some persons almost imperceptible; the second also is modified, but proportionally less than the first. Over the ensiform cartilage, the sound lessens least. Indeed, the second sound, in four cases out of ten, was distinctly increased; and in two cases, in which the first sound

became much more indistinct, the second was heard almost unchanged. These changes were all noticed in those who were capable of taking a very full inspiration and holding it for some time, and were constant on repeated examination. I believe, although the proximity of the valves to each other renders it impossible to speak conclusively, that this accentuated second sound, heard at the spot mentioned, is that of the pulmonary valves, and has become more marked, owing to the fact that during a full inspiration, the heart's action is slower, more labored, and the circulation of the lung probably interfered with; thus the pulmonary artery would be distended, and the backward stroke of the column of blood against the semilunar valves be more forcible.

"The fact that the heart-sounds are in a full inspiration less distinctly heard at points at which they were previously well perceived, may be explained by the lung being carried in front of the heart, which it does more on the left than the right side, and, to some extent, by the relative displacement which occurs during the act of inspiration. The apex, especially, is displaced; it moves down in some persons, by several inches, towards the pit of the stomach, and becomes almost imperceptible at its previous point of impulse. This displacement seems to me to be brought about, not only by the depression of the diaphragm, but by the pressure of the lung on the left side of the heart, a fact of which I have been convinced by other observations."

ART. 45.—*On the treatment of Purpura Hemorrhagica by Tincture of Larch Bark.* By Dr. S. L. HARDY, Physician to the Hospital for Diseases of Children, Dublin.

(*Dublin Hosp. Gaz.*, Jan. 15, 1853.)

Dr. Hardy tells us that he has been long in the habit of using larch bark as a styptic and carminative tonic. The tincture is of a dark carmine color, with an agreeable "pinie" smell. In taste it partakes of that of the oleo-resins. "It is," says Dr. Moore, "one of the most elegant forms at our disposal of prescribing a terebinthinate."

CASE 1.—A boy, *æt.* 16 years, who had frequently been a patient at the Hospital for the Diseases of Children, was presented for treatment on September 6th. His appearance was that of extreme debility; he could scarcely walk; his pulse was exceedingly feeble, and his countenance pale and dejected. He was ordered the *Liquor Pernitratis Ferri*, with good nourishing diet. Having continued this treatment until the 15th, it was perceived that his symptoms were much aggravated; and there now existed a very extensive crop of spots of purpura over his entire body; his skin was harsh, dry, and contracted, his spirits greatly depressed; and altogether his general appearance was most unpromising. There had not been hemorrhage from the gums or by stool. Tincture of larch bark was now substituted for the iron, in fifteen drop doses, to be taken every two hours.

The immediate improvement which resulted from this medicine was most remarkable; all traces of purpura disappeared, and his strength became so perfectly restored, that on the 23d instant he ceased to require further treatment.

CASE 2.—E. C—, a female child, *æt.* 7 years, residing in a small and badly-ventilated house, was brought to the Hospital for the Diseases of Children, on the 10th of August, having been a week ill. The account given by her mother was, that she had bleeding from the nose and gums, with discharges of blood from the bowels, and had lost all her strength. Her appearance agreed most truly with this statement. There was great debility, with a look of general distress in her countenance, sometimes more forcibly expressed by a knitting of the brows. Her body and extremities were covered with a very extensive and well marked crop of purpura; the gums were spongy, and easily made to bleed; and her tongue was coated with a thick fur.

Tincture of larch bark was now commenced, in doses of ten drops, three times daily, after two days increased to fifteen drops, and given more frequently. On the 21st it is reported—"All bleeding has ceased; the tongue is cleaning; the bowels regular; and strength greatly improved."

From this date, under the same treatment, this child's recovery progressed rapidly and most favorably.

For the following cases, in further illustration of this subject, I am indebted to my colleague, Dr. Moore.

Case 3.—July 1st, 1858. —John M., *et.* 2 years, was brought to the Institution for Diseases of Children. He looked a soft, flabby child, and has had a cough for the last six months. On examination, I found a thick crop of purpura studded over his chest, arms, and abdomen: he was languid, with total loss of appetite, and was greatly annoyed with a soft rattling cough. He never passed blood by his bowels. As the child lived in a comparatively unhealthy part of the city, I directed that he should be at once removed to the country: and that was not convenient, that he should be kept as much as possible in the park during the day. I prescribed tincture of larch bark, eight drops to be given three times a day, in lemonade; which latter beverage, well sweetened, he was allowed *ad libitum* during the day and night.

July 3d —The spots fading; cough still troublesome.

10th.—Purpura scarcely perceptible; the child to leave for the country. Larch bark discontinued.

I have seen this boy frequently since: he has had no return of the purpura, and the cough has entirely ceased. His general appearance is much improved.

Case 4.—*Case of Bleeding from the Gums, and general Cachexia.*—Matilda M., *et.* 5 years, was brought to the Hospital for Diseases of Children, 15th September last. She looked anæmic and puny, and for the last few days free bleeding from her gums had occurred, two or three times, during the day and night. On examining the state of her mouth, I found the tongue "too red," and gums spongy. I prescribed ten drops of the tincture of larch bark, to be taken in cold lemonade four times during the day. The girl to have cold lemonade to drink freely; her food to consist of vegetables and fruit.

September 18th.—The bleeding has only occurred once during the last two days. Continue the larch bark, ten drops three times a day. Lemonade and vegetable diet, as before.

21st.—General improvement in the patient; state of the mouth and gums much healthier. There has been no return of the bleeding; however I thought it advisable to continue the larch bark a little longer, and prescribed *Lutt. viij* *℥ss* daily, in a mixture of chlorate of potash. This treatment sufficed to confirm the previous amendment.

I looked carefully for petechiæ in this case, but could not discover any.

ART. 46.—*Dynamoscropy.* By Dr. J. M. J. GASTON.

(*Amer. Jour. of Med. Sciences*, Oct. 1858.)

"The basis of this process, which is a discovery of M. Collingues, is as follows.—When one places in his ear the finger of a sick or well person, he hears immediately a certain buzzing, which varies in character according to the physical condition of the individual. With this noise is heard, at irregular intervals, a sort of crisp sound that the author calls crackling or shrivelling. These buzzings and cracklings are evidently produced by the person whose finger is inserted into your ear, for if, instead of the finger of a living being, you put that of a corpse or some inanimate body, you will hear nothing. Now, these sounds of a character constantly varying, it is the office of dynamoscropy to investigate, and though the science is of very recent origin, it may acquire in future very great importance. The author has already established that, in the normal state, the buzzing, &c., is slow, continuous, and equal, and that, on the contrary, it is, in the pathological state, rapid, strong, and unrestrained. When it is tremulous, unequal, now sharp, now deep, it indicates a seriously morbid state, and the case is still worse when the buzzing becomes intermittent. When the extremity of the finger, introduced into the ear, gives rise to no buzzing, it is an index of approaching death, except, of course, in cases of apoplexy, cataplexy, apoplexy, &c., when the noise ceases, to reappear with returning consciousness.

"M. Collingues, having remarked that the buzzings were more sensible

when a solid body, such as wood or steel, was interposed between the finger and the auditory canal, conceived an instrument to which he gave the name of dynamoscope, and by aid of which his new mode of auscultation may be applied to all parts of the body. By this means he has established that the cracklings are heard only at the extremities of the fingers and toes, that the buzzings vary in different localities of the body, and that on the death of the subject, they cease in the extremities some time before disappearing from the belly and chest. It is twelve to fifteen hours after dissolution ere the noise is entirely lost; after that time, the dynamoscope, applied upon any part of the body, gives no more evidence of sound than if tested upon any other inert mass of inorganic matter." Dr. Gaston's object is to direct attention to this process, to show that the buzzing is to be referred not to muscular vibration, but to the passage of the blood through the capillaries.

(D) CONCERNING THE ALIMENTARY SYSTEM.

ART. 47.—*Ulceration and perforation of the Diaphragm in Peritonitis.* By Dr. E. BONAMY.

(*Archiv. Gén. de Méd.*, Nov. 1858.)

CASE.—A man, *æt.* 27, admitted into the Hôtel Dieu, at Nantes, with symptoms of idiopathic peritonitis. Nineteen days afterwards an abscess burst at the umbilicus; on the 22d day there was acute pain in the right side of the chest; on the day following there was frequent cough and purulent expectoration—the matter being more offensive than that which escaped from the umbilicus, and yet very like it in odor. In the inferior third of the right side of the thorax, behind, a profound and somewhat faint and amphoric souffle was heard, which seemed to proceed from the depths of the abdomen. From this time the patient got worse and worse, until the twenty-eighth day of his malady, when he sank, the only noteworthy circumstance being that, on the evening before his death each act of respiration was accompanied by a loud gurgling sound in the abdomen, and by the escape of air from the fistula at the umbilicus.

On examination after death, there were false membranes and other signs of inflammation in several parts of the peritoneum. The right pleura communicated with the abdominal cavity by a large fistulous opening which compromised the diaphragm and a considerable portion of the liver corresponding to it. The right lung was pushed up as high as the seventh rib by a collection of purulent fluid in the pleura, and this fluid had overflowed into the air-passages through a broncho-pleural fistulous opening. And below the diaphragm was another large collection of matter in the space between the spleen and the grand cul-de-sac of the stomach, and the left extremity of the liver. This inferior collection of matter communicated with that in the pleura, through the opening in the diaphragm, and it had also another outlet through the fistula at the umbilicus, so that through these several channels air entering at the trachea could escape at the umbilicus.

ART. 48.—*On a new mode of treating severe Dyspepsia and Chronic inflammation of the Stomach.* By ALEXANDER FLEMING, M. D., Senior Physician to the Queen's Hospital, Birmingham.

(*Med. Times and Gaz.*, Jan. 1869.)

"In the medicinal treatment of affections of the stomach, I have long been convinced of the great importance of acting directly on the gastric mucous membrane. That, in fact, local treatment is here nearly as valuable as it is in affections of other mucous surfaces, as the eye, pharynx, vagina, and urethra. Hygienic rules and the management of the food are, for obvious reasons, very important in affections of the stomach, and will often cure mild cases without the help of medicine; but I am satisfied that, in the more severe and obstinate forms of chronic gastritis, the local medicinal treatment of the diseased mu-

ous membrane has been unduly neglected—and that it contributes very powerfully to promote the cure.

"Of the several medicines which I have employed with a view to their *local* action on the stomach, my experience gives the first place to nitrate of silver; and the observations I have now to make apply to this remedy. It is often given in pill. If this be made with bread-crumbs, the chloride of sodium in the bread converts the nitrate into the insoluble and comparatively inert chloride of silver. If made with gum or starch, the pill, on reaching the stomach, causes quickly the secretion of gastric juice, the chloride of sodium and muretic acid of which again render the nitrate inert. It can have very little local action in the form of pill. I have for many years, therefore, given the crystallized nitrate dissolved in distilled water, in the proportion of from half a grain to four grains to the half-ounce. The dose is taken at bedtime on an empty stomach, and is repeated every night, every second, third, or fourth night, according to the severity of the disease. The stomach should be strictly empty—the patient recumbent—and he should be made to roll about immediately after taking the medicine. It is thus, before it suffers decomposition, brought into contact pretty freely with the mucous membrane, and gives, at the time and subsequently, evidence of its local action. In many cases, this mode of using the remedy suffices, in conjunction with other means, to effect a cure.

"But this method of exhibiting the medicine is not equal to the cure of some of the severer forms of dyspepsia and chronic gastritis; and in these I have, for the last four years, endeavored to act more generally and efficiently on the *mucous* surface by injecting the solution into the stomach. I employ a strong brass syringe and flexible tube, one-eighth of an inch in bore, the gastric end of which has a number of holes so directed that the fluid is thrown in a circular shower outwards and upwards on the walls of the stomach. The injection is made by dissolving from one to four grains of the nitrate in three ounces of distilled water. The operation is for the most part managed easily. Sometimes it causes nausea and retching—often not. It excites at first an enduring and grateful sense of coolness in the stomach, and subsequently there are felt prickling and sharp painful sensations, but of a different nature from the pains of the disease. Sometimes one injection is enough, but I have more frequently had to repeat it two, three, or more times.

"During the employment of the injections the patient takes, three times a day and before food, a little morphia or chloric ether, or Indian hemp, in plain or cinnamon water. He is confined to small and frequent meals of milk, and as he gets better this is thickened with arrowroot or tapioca, and he is very gradually introduced to a nourishing and easily digestible diet. Counter-irritation to the epigastrium, nitrate of bismuth, oxide of silver, gentle tonics, &c., are employed when indicated.

"Of the thorough efficiency of this mode of acting on the mucous surface of the stomach, and of its power in promoting the cure, my experience, so far as it goes, is very decided. Although it is now four years since I first tried injections, I have not used it in more than ten cases. I have always, in the first instance, employed the simpler method already described, and resorted to injections only as a last resource; but its greater efficiency would, I feel certain, justify its employment in many of the less severe cases, and give more thorough and speedy cures. It is not my purpose, at present, to consider the intimate nature of the mode of cure, or the manner in which the nitrate of silver substitutes healthy for diseased action in the inflamed gastric membrane. I must reserve that interesting question, and the detailed narrative of cases, for another opportunity.

ART. 43.—Large flake of the epithelial coat of the Stomach vomited in a case of Scarlatina. By Dr. BEALE, Physician to King's College Hospital, &c.

(*Dr. Beale's Archiv. of Med.*, No. III, 1858.)

The portion rejected was about the size of the palm of the hand. It evidently consisted of the epithelial coat of the stomach. The rugæ were very distinct

in every part, and under the microscope only epithelial cells and mucus could be detected. There were many smaller shreds of the same nature rejected at the same time. At the post-mortem examination the walls of the stomach, at the cardiac extremity, especially in the upper part, were found to be very thin; and it was probably from this situation that the epithelium had been stripped off. The mucous membrane was much injected, and covered with a very thin epithelial layer. Partial reparation of the lesion had therefore taken place, as would have been expected, since the patient lived three days after vomiting the mass above referred to. The epithelial layer, and a portion of the coats of the stomach, have been preserved.

CASE.—M. K—, æt. 24, admitted into King's College Hospital, August 20th, under Dr. Beale, who was attending for Dr. Todd. The patient had latterly been employed in the ward in which there were two cases of scarlatina, both slight ones. Previously to her present illness she had always enjoyed excellent health. On August 19th she felt feverish, and generally ill.

August 20th.—This morning she complained of headache and sore-throat, and vomited occasionally. Her face, chest, and arms were completely covered with the rash of scarlatina. The tonsils, pharynx, and palate, were of a deep red color, and the tonsils much enlarged; skin hot and dry; appetite bad; bowels freely open; P. 108, R. 24.

21st.—Was very much purged during the night, and vomited several times; the vomiting being immediately excited by the beef tea. During the night she took 3iij of brandy. This morning she complained of pain and tenderness over the epigastrium, the pain being increased by food. Her throat was more painful, and the left tonsil was ulcerated. The rash had spread over the whole body, and the conjunctivæ were inflamed; P. 120, feebler; R. 24; urine not albuminous.

Evening.—The vomiting and purging had continued during the day, and she had kept down neither food nor medicine; she was very restless, and a little delirious; pulse 122, feeble.

22d.—The bowels had not been opened since the administration of an opiate enema. She still vomited occasionally after taking her food, but retained the brandy. She slept pretty well, but seemed weaker this morning. The eruption continued out over the whole body, and the throat was more ulcerated: P. 134, R. 36.

23d.—She continued to vomit occasionally during yesterday afternoon, and in the night, but did not reject the iced brandy. In the night she slept badly, and was delirious. This morning, about 7 A. M., she vomited up, with some bile, a piece of the epithelial coat of the stomach, about the size of the palm of the hand. Since this time the pain and tenderness of the stomach increased, and she vomited everything she took. P. 134, R. 36.

Evening.—She retained the enemata, and had not vomited again. She continued to complain of pain in the epigastrium, where there was great tenderness on pressure. She was very restless, and wandered a great deal. P. 130.

24th.—She slept a little during the night, and retained the enemata. There was less pain and tenderness in the epigastrium. She complained much of thirst, and wandered a little. The eruption was fading from the face. Urine natural.

25th.—She was very delirious during the night, and got no sleep. There was less tenderness in the epigastrium, and she did not complain of pain after taking the brandy and water. At about 7 A. M., two and a half hours after having an enema, she had a very profuse evacuation, consisting partly of the altered enema, and partly of very fetid feculent matter. Her pupils were much contracted, and she was very deaf. P. 108.

Evening.—She continued much in the same state all day, and retained the bread and milk and brandy. At night she was very delirious, and tried to get out of bed repeatedly. Pupils extremely contracted. P. 123, feeble.

26th.—She got no sleep during the night, and continued very delirious; towards morning she got much weaker; and when seen at 9 A. M., was in a state of low muttering delirium; picking at the bedclothes. P. 124, very feeble.

She now had brandy given her every five minutes, but gradually sank, and died at 4 P. M.

Post-mortem, 24 hours after death.—The lungs, liver, and kidneys were much congested; the other abdominal and thoracic organs appeared healthy, with the exception of the stomach. The mucous membrane of the stomach and duodenum were much congested, but there was no extravasation of blood in any part. The muscular coat, towards the pyloric extremity, was firmly contracted, and the mucous membrane thrown into rugæ: but the cardiac portion was relaxed, and the coats in this region seemed very thin; the mucous membrane was not thrown into rugæ.

ART. 50.—Prolonged arrest of a Foreign Body in the Stomach. By Dr. ADLER.

(*Preuss. Ver. Zeitung*, No. 15, 1857; and *Archiv. Gén. de Méd.*, Feb. 1859.)

CASE.—A child, *æt.* 3, swallowed a small copper coin, and suffered for some days from vomitings and pain in the stomach. Three months later a morsel of food stuck in the throat, and death seemed about to happen, when, after sharp shakings and smackings on the back, the morsel of bread was ejected by vomiting, and along with it the coin, surrounded by a considerable quantity of grayish, viscid mucus. The coin in question had been in the stomach 102 days; it was blackish in color, and the effigy upon it was almost effaced.

ART. 51.—On the Internal Employment of Carbonic Acid in the Treatment of Dyspepsia. By Mr. G——.

(*Medical Times and Gazette*, Feb. 12, 1859.)

"I have been a sufferer," says this gentleman, "for many years past from chronic derangement of the stomach of an aggravated character, accompanied by a depression of the nervous system so severe as to make my life one of great wretchedness. To those who know from actual experience what these complaints really are, I need not describe my symptoms further. To those who know them not, I will merely say—be thankful that you have escaped a fate so miserable.

"I have tried the regular doctors; I have tried Dr. Dickson, who has abused the regular doctors: I have tried the cold-water cure for six months; I have tried the grape cure at Meran in the Tyrol; I have been to Tunbridge Wells, Vichy, Carlsbad, Saratoga, and Kissingen. At each of these places I was under the care of a local physician of reputation. After all these things I was still a dyspeptic.

"I have been twice to Carlsbad, and I have drunk its waters, and used its baths long and perseveringly without any perceptible benefit. I have been three times to Kissingen. From my first and second visits I derived little, if any, benefit, owing, I believe, to having drunk an excess of the waters. Upon my third visit, in May, 1858, acting upon a suggestion of my own, I greatly reduced the quantity of water, and with advantage. The improvement in my health, it is true, was not very great, but it was an improvement, and that to me was encouraging. At the same time I felt persuaded that my perfect recovery would be a tedious one, extending perhaps over some years. I intended to have returned to Kissingen in the autumn, but private circumstances occurred which prevented me carrying out this plan. As a substitute for it I drank the Kissingen waters in England. I experienced some benefit from this course, but not so much as I had expected. I was somewhat disappointed at this result, and one day, while speculating as to its cause, I was induced to infer that the views which the faculty entertained touching the Vichy, the Carlsbad, the Kissingen, and their cognate waters, were altogether erroneous; that the efficacy of such waters depended neither upon alkalies nor metallic oxides, but upon carbonic acid; and that the right agent to employ would be pure water acidulated by means of carbonic acid gas.

"Shortly after this I commenced an experiment upon myself with water strongly impregnated with the above-mentioned gas, and within less than four weeks' time my health was more improved than it was by my three visits to

Kissengen. The improvement in my health is, indeed, now so decided that I confidently expect a few courses more of the carbonic acid water will completely free me from my old complaints.

"The following directions embody the result of my present experience:—

"The carbonic acid water is to be taken before breakfast.

"Let the patient take a tumblerful of the water, and then walk briskly for half an hour. At the end of this time another tumblerful of the water is to be taken, and then another half-hour's walk.

"This course is to be continued for a month.

"A discontinuance of the water for a month is then to take place.

"At the end of this time the water is to be begun again, and to be continued for a month, and then to be discontinued for a month, and so on until a cure is effected."

ART. 52.—On a new remedy for Dysentery. By Mr. Wm. Kerr.

(*Indian Annals of Med. Science*, July, 1858.)

Mr. Kerr speaks highly of the efficacy of the following *olla podrida* in dysentery, but his statements are not very circumstantial or intelligible. He seems with little rhyme or reason to have added or taken away first one thing and then another. His formula is—

One of the Scrophulariæ	Digitalis purpurea.
Two of the Solanææ	{ Datura stramonium.
	{ Solanum dulcamare.
	{ Sium lineare.
Three of the Umbelliferae	{ Cicuta maculata.
	{ Angelica atropurpurea.
When necessary, one of the products of	{ Opium.
the Papaveraceæ.	

These ingredients are mixed in equal quantities, and the dose is three and a-half grains, half a dozen times a day, if necessary.

ART. 53.—On the exhibition of Raw Meat in Diarrhœa. By M. Trousseau.

(*Jour. of Pract. Med. and Surg.*, Paris; and *Glasgow Med. Journal*, April, 1859.)

The meat best adapted to the purpose is the fillet of beef. Some patients, however, prefer the centre part of mutton chops. It should be cut *à no*, pounded in a mortar, and strained through a sieve or a cullender. The pulp thus separated from the cellular tissue of the muscular substance is then gathered with a knife and rolled in salt, or powdered sugar, or mixed with currant-jam.

One of M. Trousseau's grandchildren would take it only when mixed with rhenhout, a farinaceous compound of cocoa, ground rice, and potato-flour, sweetened and flavored with vanilla. M. Trousseau causes it sometimes to be rolled into small salted balls of the size of a hazel-nut, or in little oblong goblets, which may be administered in soup to the number of thirty or forty, equivalent to four or five ounces of meat-pulp. In grown persons, and particularly with ladies, the physician will probably meet with a repugnance, which he must overcome by concealing the repugnant character of the medication. For this purpose some appearance of cooking may be imparted to the food, by exposing a thick slice of the meat for twenty minutes to the action of a brisk fire: its surface is thus roasted, the interior parts remaining raw, and being then treated as we have said. M. Trousseau has thus caused to be prepared by M. Malhe (one of the principal apothecaries of Paris), meat-pulp, combined with confection of roses, destined for delicate stomachs, which is taken without disgust, and even with pleasure, under the agreeable denomination of *Damasceus preserve*.

In children the dose of raw meat the first day should not exceed 2½ dr. in four meals; it may be doubled on the second day, and on the third attain eight drachms, and so on, without any other additional food than albuminous water.

It is easy to measure with precision the quantity administered daily, by means of a small balance and the current coins, the weight of which is well known, the franc being equivalent to one drachm, and the five-franc piece to six drachms. The dose may be carried as far as ten or twelve ounces, and the children gradually recover their good looks, their plumpness, and spirits; at the end of a month or six weeks, when diarrhoea has entirely ceased, the quantity of raw meat can be gradually decreased, and broth or underdone eggs can be substituted, so as to reduce the dose of meat to three or four ounces daily.

It is necessary to be aware that at first, when already the nature and abundance of the diarrhoea has undergone a favorable change, the motions are red and fetid. In one of the little Mulhouse patients we above referred to, this animal diet appeared to have occasioned the development of tape-worm, a parasite commonly met with in Abyssinia, where the natives feed on raw meat. But this kind of nutriment, not being so long persevered in, generally, as was the case in the instance of the little girl alluded to, this circumstance must be considered exceptional, and cannot counterbalance the decided benefits yielded by the Russian method of treatment, in cases of chronic disturbances of the bowels, and especially in the unconquerable diarrhoea which children are subject to in their second year.

ART. 54.—On Cord-like Consolidation of the Intestine. By Dr. BENNET DOWLER.
(Pamphlet.)

In the cord-like contraction of the large intestine, the sacculated or pouched cavities are obliterated so as to lose their natural configuration both within and without the tube. The longitudinal bands of the muscular coat or the length of the bowel appears somewhat shortened, although actual measurements are still wanting to decide this point positively. The contraction of the circular muscular fibres, by obliterating the convex salient bulgings, proper to the normal condition, would reduce the apparent length of the intestine, even though the longitudinal muscular bands (the *ligamenta coli*) might be in no degree shortened.

This remarkable lesion, though probably often secondary, like many others, appears to be similar neither to the transient spasmodic contractions which probably occur in colic, nor to the permanent stricture, both of which are usually very restricted in extent, while this cordiform lesion includes, in many cases, the entire cæcum and colon.

It is possibly a primary lesion in some cases of yellow fever and in other diseases. In some persons not habitually constive, that condition precedes or accompanies the attack of yellow fever. From the induration, dryness, and rounded form of the feces, and the firm contraction and exact adaptation of the intestine to these configurations, this lesion must occur anterior to the latter stage of the disease, as many post-mortem examinations indicate. In any case, it is a prominent organic change, and, consequently, implies a previous functional derangement of a significant character, particularly in reference to the equilibrium of the circulation.

"This lesion is more common in yellow fever than in any other fever. It is also found in congestive, and even in typhoid. I have found it in bilious-remitting fever, also. It is probably, in a modified form, often the cause of obstinate constipation, colic, ileus, and may be superinduced by lead-poisoning. This contraction, it may reasonably be supposed, simulates scirrhus strictures, invaginations and fecal and calculous concretions. In all of these conditions the diagnostic symptoms are, unfortunately, very obscure and equivocal, so far as the mere contraction of the intestinal calibre is concerned."

CASE.—Large man from Louisville: the cæcum, colon, and rectum contracted to the size of the thumb, scarcely pervious to the scissors, containing nothing but a handful of small, dry, inodorous, friable, black crumbs or scybala, from the size of a pea to a hazel-nut; the whole of the large intestine being firm, strong, elastic, thickened, blanched, bloodless, and scarcely moist within. The following facts are mentioned for comparison: mouth and gullet

fall of blood; stomach small, blanched, four ounces of black vomit, without any bloody tinge; jejunum, blood and black vomit; the upper third of the ileum gray chylous paste, the residue black vomit again."

ART. 55.—Relative Value of Different Anthelmintics in the Treatment of Tenia.
By Dr. PEACOCK, Assistant-Physician to St. Thomas's Hospital.

(*Med. Times and Gaz.*, Nov. 6, 1858.)

The following is a brief summary of a series of cases in which different anthelmintics had been employed against tapeworm. The patients were all treated by Dr. Peacock, in the out-patients' department at St. Thomas's Hospital, and we are indebted to him for access to the detailed notes upon which the statements are founded:—

As a general result of his experience both in public and private, Dr. Peacock states that he gives preference to the oil of male fern before all other remedies, and that he holds the kousoo in very light estimation indeed. It appears that of the hospital cases respecting which notes have been preserved, the fern oil was given in thirty-five. Of these, in sixteen no other remedy had been previously tried, and in this group the result was always satisfactory, the animal being expelled in a dead or dying state. In seven cases the oil was given after the partially successful use of kousoo, and in all these more of the worm was brought away. In three, after partial success by pomegranate bark, the oil brought away other portions of the parasite, and in one a like result was obtained after the use of the turpentine draught. In six cases in which the oil was used, either the result was not satisfactory, or the patient did not attend again. The dose of the oil given was from half a drachm to a drachm and a half to children, and from a drachm to three drachms to adults.*

The cases in which the kameela was given are seven. In five of these no other remedy has been previously tried, and in all these portions of worm (generally quite alive) were expelled. In one the expulsion of worm was caused after kousoo had been tried without effect, and in the fifth, which was under similar circumstances, a like negative result followed its use also. In two cases after the successful employment of the kameela, the oil of fern was employed without procuring the expulsion of any more of the worm. The dose of kameela prescribed was from half a drachm to a drachm for children, and from one to three drachms to adults.

It would from the above facts appear that kameela is more efficient than kousoo, but that it must rank as a vermifuge rather than a true vermicide. After the fern oil the animal is usually voided dead. An important statement with regard to the comparative value of kameela, is made by Mr. Henry Callaway, formerly of Finsbury Circus, but now a medical missionary amongst the Zulus. The kameela is the native remedy among the aborigines; but, in a letter to the '*Pharmaceutical Journal*,' Mr. Callaway states, that from experience they have learned already to put much more confidence in "the white man's dose." The latter consisted of turpentine and castor oil, the time-honored remedy among ourselves. We are not able, from Dr. Peacock's cases, to institute any comparison between turpentine and fern oil, and can only state that we believe he is supported by several other hospital physicians who have given much attention to this matter, in maintaining that the latter ought to stand *facile princeps* among our anthelmintic drugs.

As regards the economics of the question, which are important in hospital and union practice, it will, of course, be easily granted that, all things considered, the most efficient remedy will probably in the end prove the cheapest. A dose of castor oil and turpentine, undoubtedly, costs far less than any of the others. Next to it comes the kousoo, which has as rapidly fallen in price as it has in general estimation. The kameela is, as yet, rather expensive, though

* We are informed that great care is necessary on the part of the dispenser, in order to avoid disappointment in the use of the oil of fern. Its ethereal solution, which is by far its best preparation, on standing deposits its resinous principle. A prolonged shaking is necessary to secure readmixture. Unless the dispenser pay more than usual attention to this matter, the patient is very likely to get a dose which is but little more than ether.

not nearly so much so as the fern oil. A full dose of the last costs eightpence, of the kameela about fourpence, of the koussou threepence, and of the turpentine and castor oil not more than three halfpence.

Kuchenmeister, in his 'Manual on Parasites,' (Sydenham Society's edition), writes of the oil of turpentine as follows: "As has already been remarked, the touchstone of a remedy for tapeworm is not whether it expels *bathrionecephalus latens* or *tenia solium*, but whether it is also capable of effecting this with *t. medio-canellata*. That oil of turpentine is efficacious in the latter case I can prove at any time: for the finest specimen of *tenia med.* that I ever saw was expelled by it. In general also it acts pretty rapidly. Lastly, it has also the advantage that it expels the worm entire." Of the koussou he writes, "For my part I have always been more or less unlucky with this remedy. . . . I have generally seen the worm expelled in innumerable fragments. . . . I have never found the head. In one case I detected fragments in the evacuations for three months." Professor Martins, of Erlangen, who also has used koussou largely, never saw the head brought away. Of the male fern, Kuchenmeister states: "This remedy, which will always maintain its renown against the *bathrionecephalus*, appears hardly to maintain its reputation with regard to *tenia*. The kameela he had not tried.

Of the desirability of having the intestinal canal as empty as may be before giving anthelmintics, most practitioners are aware. To administer them fasting in the morning is usually thought sufficient; but in cases where difficulty has been encountered in destroying the animal it may be well, as an introductory measure, to give a sharp purgative.

ART. 56.—*Recovery after repeated operations of Paracentesis for Ascites.* By Dr. BASAS, King's Prof. of Physics, and Physician to the Whitworth Hospital.

(*Dublin Hospital Gazette*, Feb. 1, and March 1, 1859.)

The two following cases are remarkable on account of their unusual termination. These stand, indeed, almost alone in this respect.

CASE I. A woman, æt. 32, was admitted into the Whitworth Hospital in the month of March, 1857; she had been, on former occasions, a patient in the hospital, but the ailments under which she labored were unimportant, and bore no relation to the disease which forms the subject of the present notice. Her health was generally good, she was fifteen years married, and had borne six children, and, being extremely poor, she had suffered many privations. Her habits had always been strictly temperate. On admission, she stated that for many weeks she had labored under the illness which had finally constrained her to seek hospital relief. The earliest deviation from her usual health was a pain in the right side, and about the same time she perceived an alteration in the color of her skin; and she, moreover, observed that she was gradually losing flesh and strength. The quantity of urine passed was notably diminished; and slowly, but steadily and uninterruptedly, the abdomen increased in size, until at length it became so large as seriously to incommode her from its great bulk; and from the difficulty of breathing, caused by an extraordinary exertion, she found it impossible any longer to pursue her occupations, which were usually of a most arduous nature. The face was thin, as were also the extremities; the conjunctiva and the skin generally presented an icteroid hue. The abdomen was as large as that of a woman who had completed the full period of uterogestation, and its surface was traversed by numerous veins of considerable magnitude. Fluctuation was distinctly perceptible, and the result of a minute examination of the abdomen left no doubt of the nature of the disease; the conclusion arrived at being, that the dropsy was non-encysted, and that the hydroptic effusion depended on hepatic disease. In coming to this opinion, we were aided by the exclusion of the many other causes which are potent in the production of serous effusions into the peritoneal cavity. The history of the case precluded the idea of the dropsy originating in inflammatory action of the peritoneum. We failed to obtain any information which could lead to the supposition of the effusion having taken place subsequently to the sudden impression of cold, or to the suppression of a flux to which the system had become habitu-

ated. She had not recently been the subject of fever of any kind, nor had she suffered from any form of hemorrhage. The urine was, in quantity, far below the standard of health, rather high-colored, and deposited, on cooling, a copious sediment of the urates and purpurates. No trace of albumen could be detected, but the nitric-acid test afforded evidence of the presence of a minute but appreciable quantity of bile. The heart's action was perfectly healthy; not the slightest ground for suspecting any lesion existed, and the only circumstance connected with this organ which calls for remark, was the fact of its impulse being felt about an inch and a half above its usual site—the abdominal effusion having encroached upon the thoracic cavity, and consequently pushed the heart upwards, the altered position, as I have frequently remarked, having no influence on the due performance of its functions. The lower extremities and the face were free from the slightest trace of anasarca. This alone was sufficient to exclude cardiac or renal disease, and even obliteration of the vena cava could not, for obvious reasons, be entertained for a moment when the etiology of the disease engaged our attention.

Even without closely interrogating the other organs, upon lesions of which serous effusion of the abdomen might depend, the practical physician could have little hesitation in arriving at the opinion that the dropsy was of the obstructive form, and that the organ at fault was the liver. The presence, not alone of bile in the urine, and the semi-jaundiced hue of the skin, but, in addition, the fact of the urine containing purpurates, added confirmation to this view of the case. The lesion of one or other of the organs connected with the portal system—and, with extreme probability, the liver—may be predicated whenever the renal secretion constantly exhibits pink or flesh-colored deposits.

The dropsical distension was so great that the operation of paracentesis could not be postponed much longer, and it was accordingly performed on the 14th of March, 1857. The instrument selected was extremely small, the same size I am in the habit of using in performing the operation of thoracentesis. Twenty-six quarts of fluid, of a pale straw-color, flowed away through the canula, and, on its removal, fluid continued to trickle through the minute orifice for the following twenty-four hours. After the evacuation of the peritoneal effusion, an examination was instituted to determine the state of the abdominal organs—an investigation which could not be satisfactorily performed in the distended state of the abdomen, prior to the abstraction of the fluid. The liver appeared to occupy the limits which are assigned to it in health; it was not smaller than natural—a state which, it must be confessed, was anticipated. There was no evidence of enlargement of the spleen. Almost all the symptoms which caused so much distress previous to the operation were removed or ameliorated. It was noticed particularly that the function of the kidneys, which for some days had been nearly in abeyance, was now nearly restored to its pristine activity, and the urine approached in its characters more closely to that of health. The patient's condition became one of comparative comfort, and in a few days she requested to be discharged, from her anxiety to be again actively employed in the endeavor to support her family.

On the 15th of April she was again received into hospital, in nearly the same state as before; the operation of tapping was again resorted to, and precisely the same quantity of fluid, viz., twenty-six quarts, was drawn off. Again the operation was followed by marked relief to the symptoms which so severely harassed her.

The moment her strength was sufficiently restored, she left the hospital, and, as before, returned to hard work, and to poor and insufficient nourishment. In the following month (May) the same scene was enacted; and, strange to say, the identical same quantity (twenty-six quarts) was the produce of the operation. In the next month the dropsical distension again demanded that the operation should be repeated, and twenty-seven quarts of serum, in all respects resembling that observed on the former occasions, were removed. The fluid again accumulated, and, in July, twenty-eight quarts were removed by tapping. In August the quantity was considerably greater than it had been on any of the previous occasions, amounting now to thirty-six quarts. It may here be noticed that, up to the sixth operation, the peritoneal effusion was marked by

a certain regularity, as to the rate of its accumulation, and as to the amount removed in the reiterated operations. In September, the periodicity hitherto observed was broken, the symptoms urgently requiring that relief be afforded twice in the course of the month; and on the first occasion twenty-six quarts, and on the second fifteen quarts, flowed away. She did not now rally so rapidly as before. Her strength was at a very low ebb; she exhibited a more marked amount of attenuation; and her restoration to her ordinary state, after the withdrawal of the fluid, seemed to be mainly retarded by the inability to retain food, nearly everything taken into the stomach being rejected by vomiting. The abdomen slowly increased in size; the umbilicus became prominent, and its integuments gradually thinned. In October it was found expedient to operate, and twenty-six quarts of fluid were drawn off. In November the operation was twice performed, and fifteen quarts on the first occasion, and sixteen on the second, came away. The umbilicus had been for some time gradually increasing in size, and now a protrusion of considerable magnitude existed, which increased on coughing or rising up in bed. In the early part of December she was tapped, and twenty quarts drawn off, and in three days she left the hospital. The urine, at this period, was scanty, and presented the characters already alluded to—viz., it deposited abundance of the lithates and purpurates, and contained bile. She did not return to hospital as soon as she had been in the habit of doing, and, on applying for admission, she informs us that a little crust or scab, which had formed on the most prominent part of the umbilical protrusion, had given way, and twelve quarts of fluid came off. From this date (the 30th of December) until the 8th of January, 1858, there was a continual flow of colorless serum from the opening, which had been becoming less for the last three or four days, and on the 9th had become closed. The protrusion had almost disappeared, but a small abscess formed, which was opened, and exit given to about a tablespoonful of purulent matter. A second abscess formed, and now the umbilicus was surrounded by an erysipelatous redness, which extended downwards as far as the pubes. The abdomen during this time was growing larger, but it was remarked that the process of exudation was more slow, the quantity of effused fluid being much less than it had been formerly in the same space of time. The erysipelas gradually faded away, but it was observed that its presence did not excite any marked constitutional disturbance. From this time the operations were performed at shorter intervals than formerly, the abdomen never being permitted to attain any great size. This measure was adopted in some degree at her own request, from the experience of the great relief afforded her on each occasion. One exception there was arising from her remaining out of hospital longer than usual.

The accumulation evidently, of late, had been much slower than before, and her health, with some interruptions, had improved. On the 14th of June, 1858, she was tapped for the last time—the twentieth. Since that period there has been no dropsical effusion; and now, at the expiration of seven months, she is perfectly well, indeed, to use her own words, she "never was in better health."

The abdomen is large, but the most careful examination fails to discover any fluid in the peritoneal sac; and the size of the abdomen may fairly be attributed to the enormous distension of the walls repeatedly experienced during the long period intervening between the commencement and termination of the disease. The catamenia, which had been absent since the birth of her last child, two years since, and during the whole course of her illness, have returned.

The exact amount of fluid in this case cannot easily be calculated; but estimating what was removed by the operations of tapping, what followed the rupture of the umbilical protrusion, and what oozed away after the operations, I think we may conclude that more than 400 quarts escaped from the peritoneal sac. The fluid was a pale straw-color, often containing a little bile; and the specific gravity was 1012.

CASE II.—A young woman, *æt.* 24, was received into the Whitworth Hospital on the 1st of February, 1856, laboring under general dropsy. A considerable amount of fluid existed in the cavity of the peritoneum, and the lower extremities were large and oedematous. The urine was pale, neither above nor below the ordinary standard in quantity, and contained a notable amount of albumen.

She stated she had not been long ill, and she had not recently labored under scarlatina or any other febrile disease. Her habits of life had been irregular, and she had been frequently exposed to cold. There could be no doubt of the nature of the disease, inasmuch as the absence of every sign and symptom indicative of hepatic or cardiac disease, and the presence of albumen in the urine, and the fact of its low density (1012), pointed to the kidneys as the organs to which the dropsy was to be attributed. The amount of peritoneal effusion was unusually large, considering that there was sufficient evidence of its being merely a part of general dropsy, and not traceable to obstructive disease of the liver. The young woman was weak, and presented the anemic appearance so characteristic of renal disease. Soon after admission, the feeling of distension and the difficulty of breathing became so distressing that it was determined to remove the fluid from the abdomen by tapping. The operation was followed by a marked alleviation of the most urgent symptoms, but it soon became apparent that the fluid was again accumulating in the peritoneal cavity. From the first operation to the date of her dismissal from the hospital, a period of seven months elapsed, during which she was tapped thirteen times—the average quantity of fluid removed at each operation being twelve quarts. The interval elapsing between each operation varied from nine to fourteen days. In addition to the drawing off the fluid from the abdomen, at intervals, iodide of potassium in small doses was administered; and this treatment was steadily pursued, with much advantage, for a long time. Ferruginous preparations were also given, and gradually the case assumed a more promising aspect than could have been expected, remembering the state of things which existed at the period of her admission into hospital.

It is unnecessary to enter into minute details of the progress of the case during the months she remained under observation; it will be sufficient for my present purpose to notice the fact, that at length the dropsical symptoms totally disappeared, the urine returned to its normal state, and the young woman left the hospital apparently restored to health. I have no knowledge as to whether she has remained so since or not, but she has been seen by one of our students, who reports that she was looking well; and I am persuaded that, in the event of the disease having returned, she would have again sought admission into hospital.

ART. 57.—Cases of Acute Yellow Atrophy of the Liver with Icterus. By (1) Professor BAMBERGER, of Würzburg, and (2) Dr. MULLA, of Constantinople.

(1, *Gaz. Héd.*, July 6, 1858, and 2, *Gaz. Méd. d'Orient*, March, 1858.)

Both these patients had been debilitated by previous disease, and acted upon by strong emotion, and no special circumstances can be pointed out as leading to the disease. The cause of the destruction of the cells Professor Bamberger considers to be acute parenchymatous inflammation.

1. Professor Bamberger's Case.

M. T.—, æt. 28, had recovered some weeks ago from a pelvic abscess which had discharged through the vagina. She lived in trouble, and seemed to have been subjected to strong emotions on the first days of her new malady. On the 3d of October, 1856, she became icteric; she complained of cephalalgia, tinnitus aurium, prostration, and pain in the extremities. On the 6th the liver extended beyond the ribs, and its border could be easily felt on palpation. On the 9th it could not be reached except by thrusting the fingers deeply into the hypochondrium; also percussion proved a diminution of the volume of the liver. On the 15th evening delirium set in, then agitation, and on the 16th, the day on which the patient entered the hospital, she was in a comatose state. Lying on her back, she seemed to be unconscious of what was passing around her, and only answered in monosyllables, if questioned; sensibility was, however, retained; convulsive attacks from time to time; intense icterus of the skin; pulse 68, very small; temperature in the axilla, 35.5° R. Right hypochondrium not painful on pressure; percussion dull only on the external side of the hepatic region to the extent of seven centim., more internally

somewhat tympanitic; to the left of the median line all dullness disappeared; the stools only little colored; urine voided involuntarily, and of icteric tint. Ether; wine; injections of vinegar; sinapisms; cold affusions.) A little improved on the 17th. On the 18th icterus more intense; depression more profound, pulse 70; temperature 36.2°. (Cal-mel; affusions.) Much agitation during the night. On the 19th grayish, involuntary stools; nearly absolute coma; hepatic dullness less extended than previously; pulse 84; temperature 36°, hands cold, cyanotic; the patient has, nevertheless, some appetite. On the 20th the stools were quite colorless; agitation alternated with prostration. On the 21st nothing could awake the patient; the skin, if raised into a fold, would resume its place only slowly; a diphtheritic ulcer had formed on the interior side of the lower lip; sanguinolent sputa; pulse 120. Died the same evening.

Autopsy—Icteric coloration of all the organs, with exception of the brain, which contained only little blood, but presented no other anomaly. The left heart and the vena cava contained liquid blood mixed with some soft clots. Underneath the endocardium of the left ventricle a great number of ecchymoses were observed; the spleen was voluminous; liver atrophied; the diminution of volume affected, particularly its left lobe, and the thickness of the organ, which, at a point of the right lobe, did not exceed eight centimetres. Its tissue was remarkably flaccid and pliable; its color orange-yellow, mixed with red in the left lobe. The lobules were nearly effaced, except toward the posterior border of the right lobe, which contained also more blood than the rest of the organ. The branches of the portal vein were empty, otherwise healthy; the hepatic ducts collapsed, and for the most part empty. The gall-bladder contained only half a teaspoonful of thick bile of greenish-gray color; hepatic artery permeable. The microscopic examination showed that the lobules of the liver were preserved nearly everywhere. The cells, which occupied their centre, were much colored by bile, while those at the periphery were, for the greater part, destroyed, and replaced by fatty and pigmentary granules. The contents of the large intestines were quite colorless, except in the region of the ileo-caecal valve, where they were slightly colored by bile. The chemical analysis of the different liquids and solids of the economy, by Professor Scherer, was made particularly to search for leucin and tyrosin. It was found that—
 1. The urine contained leucin, and biliary pigment; neither albumen, nor tyrosin, nor tauro and glycocholic acid. 2. The blood: leucin more abundant in the venous blood than in that of the left heart; no tyrosin nor hypoxanthin. 3. The bile: taurocholic and glycocholic acid; neither tyrosin nor leucin. 4. The spleen: hypoxanthin and leucin, little tyrosin, traces of oxalate of lime. 5. The liver: much leucin, and tyrosin, and hypoxanthin.

2. Dr. Mühlig's Case.

An English woman, æt. 21, had suffered much of late from misery and grief. She had arrived at the last month of her first pregnancy, when her conjunctiva became icteric, and her temper more irritable than usual. She was delivered without accident, and had no bad symptoms for three days; but in the night of the fourth she was seized with violent agitation and delirium. A physician was called in, and prescribed an emetic; afterwards the patient was put under narcotic influence. Dr. Mühlig saw her on the fourth day. He found her lying on her back, the eyelids closed, the pupil dilated and immovable, the skin and conjunctiva colored light yellow; expression and physiognomy apathetic; persistent trismus; from time to time hiccoughs, and slight flexing movements of the forearm. The patient was in profound coma; no sensibility betrayed on pressure in the hypochondriac regions. Involuntary evacuations; retention of urine; temperature of skin not sensibly augmented. Percussion gave a tympanitic sound in the epigastric, and an obtuse tympanitic in the hepatic region, over the inferior ribs, to an extent of about two fingers square; higher up dullness to the extent of about four centimetres. Purgative injections and sinapisms. Died the following night.

Autopsy—Absence of cadaveric rigidity. Heart normal, containing some liquid blood and very friable clots. The liver was reduced to nearly two-thirds

of its normal volume, and was concealed in the depth of the right hypochondrium; its peritoneal coat was wrinkled; its left lobe represented merely a small appendix to the right lobe. The diminution of volume was remarkable, particularly in the thickness of the organ, which seemed flattened, with the borders flabby and hanging down. Its tissue was flaccid and without resistance, and presented a uniform light yellow color, except in some points where it was purplish-red, and gave out neither blood nor bile. Gall-bladder distended by a grayish, flaky liquid; biliary ducts contracted but permeable; spleen enlarged and softened; stomach and large intestines contained grayish mucus, mixed with a blackish liquid resembling coffee-grounds, but there were no hemorrhagic erosions present. On microscopic examination, the hepatic cells were completely destroyed; only a molecular, yellowish, uniform detritus, and some oil-globules were visible.

ART. 58.—On the diagnosis of Tumors and Enlargement of the Spleen.

By Dr. HANE, Assistant-Physician to University College Hospital.

(*British Med. Journ.*, Nov. 29, 1858.)

After some observations on the difficulties attendant on the diagnosis of abdominal tumors and intumescences generally, and after having pointed out briefly on what these difficulties depended, and how some of them, at least, might be overcome, the author proceeds to define the exact scope of the paper, and to point out how light is thrown on the subject by a knowledge of the etiology, pathology, morbid anatomy, &c., as well as of the physical signs of the diseases of the organs in question.

After very shortly alluding to—1, the anatomical peculiarities of the spleen, and its somatic relations to other organs under their ordinary conditions, the author proceeds to consider, 2, the physical signs it produces when in its normal state; 3, the different diseases of the organ which gives rise to its enlargement; 4, the varieties in appearance, size, shape, and consistence which it may offer; 5, the physical signs presented by the organ when diseased; 6, the various abdominal tumors with which an enlarged spleen is likely to be confounded, and the physical signs and other conditions which aid in the diagnosis; 7, how far the precise kind of disease can be determined in any case of splenic enlargement.

In this abstract we can but refer to a few of the points insisted upon by the author. He says that in a normal condition, the spleen never descends below the ribs, but that sometimes, in very thin subjects with lax abdominal walls, its lower edge may be detected by tucking, as it were, the fingers under the costal cartilages; the limits of the dulness on percussion to which it gives rise are defined, and the circumstances connected with other organs, &c., sometimes interfering with the ready determination of its physical signs. Amongst the diseased conditions increasing the volume of the organ, reference is made to congestion from various causes: inflammation; fibrinous deposits; hypertrophies, both of the red parenchyma and of the Malpighian bodies, the lardaceous spleen often associated with a similar condition of the liver, &c.; tubercles; cancer; cysts of different kinds, &c. It is not very uncommon to find the spleen weighing from two to three, up to twelve or eighteen pounds, while instances are on record of its weighing forty and forty-five pounds. The different modes of physical exploration are described, the chief reliance being placed, as in the case of almost all abdominal tumors, on palpation and percussion. The signs produced by the organ in its various degrees of enlargement are alluded to, much value, in a diagnostic point of view, being attached to the detection of the thin anterior edge of the organ, and its notched condition; to the absence of intestines in front of the organ; to the superficial character of the tumor; to its smooth, somewhat convex, outer surface; to a certain degree of mobility of the mass; to the "splenic murmur," when this is present, though it is frequently absent. The splenic dulness on percussion is often very great, but sometimes, when the organ is thin, though enlarged, the resonance of the intestines underneath may be transmitted through the tumor, and a certain amount of resonance over the edges of the mass is by no

means uncommon. The detrusion of other organs by the enlarged spleen, and the physical signs thus caused, are likewise referred to.

The author then speaks of the increase of the difficulty of diagnosis produced by the simultaneous enlargement of other viscera, particularly the liver and the left kidney; often, too, it is a question whether a given tumor be splenic, or be referable to one of the organs just named; and certain conditions (thickening, &c.) of the stomach, tumors of the omentum, and even of the ovary, &c., have been mistaken for enlarged spleens. The kidney tumors have a less sharp edge than splenic ones, and usually have intestine, or, if very large, at least the colon, in front. Dr. Mare once met with a murmur in a renal tumor, but only once: it was synchronous with the systole of the heart, or nearly so, and it was in the tumor, not transmitted from the aorta: on the other hand, a murmur in a splenic tumor is not very uncommon. The condition of the urine also frequently assists in determining the character of a renal, in contradistinction to a splenic tumor. With regard to mobility as a diagnostic sign between these organs when enlarged, the author gives it as his opinion, that though splenic tumors are usually more movable than renal ones, tumors of the latter kind are often more mobile than is usually supposed, and more so than they are usually stated to be in books. Being able to trace a transverse line of dulness from the left to the right hypochondrium, and the detection of the notch between its two lobes, tend to point out the liver as the seat of enlargement, either (as the case may be) coincidently with, or independently of, the existence of splenic tumor.

The connection between certain general states of the system, or special symptoms (such as typhus fever, ague, leucocythæmia, &c.) is next discussed, and it is shown that, by a consideration of the physical signs, together with the general symptoms, &c., a perfectly correct diagnosis might often be arrived at, not only as regards the spleen being the organ in question affected, but also as to the exact character of the disease itself.

(Z) CONCERNING THE GENITO-URINARY SYSTEM.

ART. 59.—*On the value of Albuminuria as a symptom of Kidney Disease.* By Dr. PARKES, Professor of Clinical Medicine in University College, London.

(*Medical Times and Gazette*, Jan. 1, 1859.)

Valuable tables on the presence or absence of albumen (derived from the kidneys) in the urine in various diseases, have been given by Martin-Solon, Finger, Haywood, Johnson, and others. In order to test the accuracy of the usual statements, and especially to draw a stronger distinction between temporary and permanent albuminuria, Dr. Parkes has lately analyzed those cases of his adult patients in University College Hospital in which the urine was examined carefully and daily for a sufficient length of time to enable it to be said with perfect accuracy, that albumen was or was not present during the whole course of the disease, or at any time of it. Cases of cystitis and vaginitis were not included. By the term "temporary albuminuria" he implies a case in which, after lasting for some days or even weeks, the albumen entirely disappeared for some time before the patient left hospital; and by permanent albuminuria, a case in which the albumen did not disappear during the time the patient was under observation; this time being generally very long, and always many days. University College Hospital is a general hospital, into which cases of smallpox and scarlatina are seldom admitted. He excludes from consideration all cases of cholera and of pregnancy.

TABLE I.

	Total number of cases	Urine not albuminous at any time	Urine temporarily albuminous	Urine permanently albuminous
Men	170	124	21	25
Women	183	103	16	14
Reduced to a percentage, this table is as follows:—				
In every 100 men admitted into the medical ward of a general hospital in London		72.94	12.35	14.71
In every 100 women admitted into a general hospital in London		77.44	12.03	10.53

The proportion of cases of temporary albuminuria is therefore almost the same in the two sexes; i.e., the causes producing the albumen are independent of sex. The proportion of cases of permanent albuminuria is greater by rather more than 4 per cent. in males, on account of the greater prevalence of organic kidney disease in male hospital patients in London.

(a) *Temporary albuminuria.*

The causes of the temporary albuminuria were—

TABLE II.

DISEASE.	MEN.			WOMEN.		
	Total number of cases.	Temporary albuminuria.	No albuminuria.	Total number of cases.	Temporary albuminuria.	No albuminuria.
Paraplegia (spinal) . . . . .	...	...	...	2	1	1
Hemiplegia (cerebral hem.)	8	1	2	1	1	...
Phthisis (chronic)	17	1	16	11	...	11
Pleurisy (acute)	11	1	10	6	...	6
Bronchitis (acute) lungs otherwise healthy	3	1	2	3	...	3
Bronchitis (acute in emphysematous lungs)	6	1	5	3	1	2
Bronchitis (tuberculous lungs) . . . . .	...	...	...	1	1	...
Pneumonia (acute lobar)	7	3	4	3	3	...
Heart disease, hypertrophy, dilatation, and valvular affections	6	1	5	11	1	10
Acute morbus Brightii	3	3	...	...	...	...
Acute rheumatism	8	2	6	11	2	9
Subacute rheumatism	8	1	7	...	...	...
Purpura hem. . . . .	...	...	...	1	1	...
Typhoid fever	10	2	8	9	3	6
Typhus	2	1	1	...	...	...
Varicella	2	1	1	3	1	2
Scarlatina	1	1	...	1	1	...
Erysipelas (leg)	1	1	...	...	...	...
Total	88	21	67	66	16	50
Percentage . . . . .	...	23.86	76.14	...	24.24	75.76

The percentage of this table (which includes all the diseases any case of which had the urine temporarily albuminous) shows, as in Table I, that the effect of sex is not obvious in the production of this symptom.

The quantity of albumen was large in the pneumonic and acute renal cases; was in some quantity in the typhoid, variolous and scarlatinal cases; was very small in most of the rest. Blood on microscopic examination was observed only in three cases, in which the amount of albumen was small; but it may have been present in some others.

(b) *Permanent albuminuria.*

The causes of the albuminuria were—

TABLE III.

DISEASE	Men Albumin- uria.	Women Albumin- uria.	REMARKS.
Morbus Brightii (all forms) . . .	18	9	
Encéphaloid disease of kidney . . .	1	...	
Cystic disease of kidney . . .	1	...	
Leucocythemia with presumed lardaceous kidney disease . . .	...	1	
Chronic phthisis and kidney disease on post-mortem examination . . .	1	...	
Pleurisy with probable kidney disease . . .	1	...	Casts and kidney-structures in sediment of urine.
Heart disease (hypertrophy) and valve affection	■	2	Kidneys healthy in 3 cases on post-mortem examination.
Hemiplegia from cerebral softening . . .	...	1	Blood-corpuscles.
Paracentric disease causing icterus . . .	1	...	Amount of albumen very small.
Purpura hemorrhagica	1	...	Case not fatal; nothing definite known about kidneys.
Typhoid fever	1	1	Blood-casts and establishment of decided morbus Brightii consecutive to the fever.
	26	14	

Therefore, in 32 out of 39 cases of permanent albuminuria, disease of the kidneys was either proved, or was rendered highly probable, by the presence of other symptoms. In three other cases kidney disease was not disproved; but as nothing was decidedly known, he is justified in excluding them from further consideration.

Permanent albuminuria indicated, then, kidney disease in 32 out of 36 cases; and if the heart diseases be excluded, it may be said that it indicated kidney disease invariably. Of late years the discovery of albuminuria in so many diseases has caused some scepticism as to the value of this symptom, but it would seem that the distinction of temporary and permanent albuminuria has not been drawn with sufficient care, and that if it be permanent, the significance of albuminuria is as great as it was supposed to be by the older writers on morbus Brightii.

A distinction between the temporary and permanent albuminuria was often probable even at the first examination, from the usually much smaller amount of albumen in the former class of cases, with the exception, however, of the pneumonic, specific febrile, and acute renal cases, in which the quantity was often large.

ART. 60.—*The identity of Scarlatinal Dropsy and acute Morbus Brightii.*

By Dr. BASHAM, Physician to the Westminster Hospital.

(*Lancet*, Jan. 1, 1859.)

The following case illustrates two important facts in the pathology of the kidneys. First, the relation which scarlatinal dropsy bears to acute morbus

Brightii; and secondly, the character of the structural changes which at first impede, and ultimately destroy, the function of the kidney.

It was at one time doubted whether the renal disorder after scarlet fever had anything in common with those forms of disease described by the late lamented Dr. Bright, which the concurrent opinion of European pathologists now designates as morbus Brightii. It scarcely required the genius of a Rokitsansky to identify them; yet that great pathologist has not hesitated to recognize in scarlet fever one of the most energetic causes of the acute form of Bright's disease. The symptoms during life are the same, and a microscopic examination of the renal structures establishes the identity of the morbid process beyond all objection. Frequent examination of the urinary sediment in both cases will exhibit the similarity of the matters thrown off from the renal tubes, and the identity of the changes proceeding in them; and a comparison of the structural changes in the kidney after death will complete the proof. In both, the kidneys will be beyond the natural weight, large, pale, and exsanguineous with a few scattered, star-like, vascular points. The cones will present a remarkable contrast of color to the surrounding deposit, varying from a pale pinkish madder to a deeper tone of madder red; they display the linear markings of the straight tubes, frayed out at the base, fancifully compared to a sheaf of corn.

Microscopically examined, the whole structure of the organ, tubular, as well as interstitial, is seen infiltrated with a product which fills and chokes the tubes, obliterates the Malpighian capillaries, permeates the interstitial plexus of vessels, and eventually offers such an obstacle to the course of the blood and circulation through the kidneys as to bring within limits incompatible with life the excretory power of these organs. The mode of death, in both cases, is clearly traceable to this cause; for, in the great majority, the patients die with symptoms referable to a poisonous agency operating upon the nervous centres, and coma, with or without convulsive movements, is usually the indication of the fatal termination by uræmic poisoning.

CASE.—Frances G—, æt. 19, was admitted into Queen Adelaide ward on the 10th of November, suffering from general dropsy of the surface of the body. There was oedema of the face, arms, wrists, and back of the hands, as well as of the trunk and lower extremities. The swollen state of the face usually subsided as the day advanced. There was the usual pallor of the skin. There was some dyspnoea, with occasional cough and trifling expectoration of catarrhal mucus. The urine had been very scanty, and micturition distressingly frequent: during the night, the desire to pass urine occurred every hour, and the rest was consequently much disturbed. The urine had a cloudy, dirty, soot-like appearance, was highly albuminous, threw down a copious, coarse deposit, and exhibited under the microscope blood-corpuscles, coarse, granular, fibrinous flakes, containing blood-discs; large fibrinous blood-casts, many large granule-cells, and some scattered renal epithelial cells. She complained of a sense of fullness and aching across the lumbar region, and pain was excited by pressure over the region of each kidney. The chest was resonant; some catarrhal wheezing was heard in the large tubes. The sounds of the heart were natural. She stated that four weeks ago she suffered from sore-throat, at a time when scarlet fever prevailed in the house in which she lived; that her voice and power of swallowing were affected; but that she had no distinct eruption on the skin; but was told she had, and was treated for, scarlet fever. As near as she can remember, a fortnight after the sore-throat she noticed that her urine became very scanty, and of a dark-red color, as if it contained blood. The catamenia had not appeared for the last six months. In a few days she became conscious of a swelling in her face after sleep, and subsequently the hands, arms, feet, and ankles became anasarcaous. She was ordered a warm bath daily, the compound jalap powder every morning, a diaphoretic mixture every four hours, and to be clothed in flannel.

On the following day she was dry-cupped across the loins, which, with the above treatment, diminished the sooty appearance of the urine; and in two days the quantity of urine had considerably increased.

A week after admission the dropsy had completely disappeared. The urine

was clear, the specific gravity 1018, and albuminous. The deposit, examined by a micro-scope, consisted of dense fibrinous casts, some blood-casts, a few scattered blood-corpuscles; very little epithelium was visible, and no epithelial casts could be seen. She was ordered the sesquichloride of iron and an improved diet. But this treatment appeared to have been commenced too early, for on the 25th of November there was a return of hæmaturia, which, however, disappeared by the loss of a few ounces of blood from the loins by cupping.

On November 30th she again began to improve; there was no return of œdema, although the urine continued highly albuminous.

On December 4th the urinary sediment first gave warning of the unfavorable change which was commencing in the cell-structure of the tubes, notwithstanding the disappearance for a time of the dropsy, and the apparent improvement in the general condition of the patient. The urinary sediment had been examined every two or three days since admission, and up to this date it consisted of fibrinous casts, large, coarse granular casts, containing a few blood-corpuscles and a few scattered epithelial cells; but no epithelial casts or free shedding of the epithelium, which is often observed in the dropsy after scarlet fever. But now the casts were becoming transparent, containing large compound granule-cells, some exudation-corpuscles approaching in character to the pus-cells, and a few epithelial cells; and some of the casts contained numerous resplendent granules—the disengaged nuclei of disintegrated epithelial cells. Two days later the casts became still more transparent or hyaline, with an increased number of exudative corpuscles with reniform and trefoiled nuclei. The epithelial cells did not present any characteristics of fatty or abortive development. On the 11th of December, the anasarca of the surface again made its appearance. The urine became less abundant. Purgatives were again beneficially employed. The sesquichloride of iron was again taken, and for a few days another interval of improvement, so far as the diminution of the anasarca was accepted as a sign, was apparent. But the urinary sediment became more abundant. Large, solid moulds of fibrine, the greater part containing no cell structure, many hyaline-moulds, containing large, compound granule cells, and many free nuclei, indicated that the disease was progressing most unfavorably. On the evening of the 27th of December she became very restless; and on the morning of the 28th, suddenly calling for assistance, she almost instantly became insensible. The jaws became locked; there was some rigidity of the extremities; the pupils were dilated; but there was neither convulsive movement, nor stertor, nor foaming at the mouth. The respiratory movements gradually became slower and less apparent, and she ceased to breathe, without any movement or spasm, at eleven A. M.

Post-mortem examination twenty-eight hours after death.—The external surface of the body was but slightly anæmic. The pleural and abdominal cavities contained a small quantity of orange-colored serum. The lungs were free from pleuritic adhesions, but slightly œdematous. The heart was large; it weighed thirteen ounces and a half; there were several macule albide, both on its anterior and posterior surfaces; the cavities of the heart, as well as the valves, were natural. The liver was healthy. The left kidney was the larger of the two: it weighed seven ounces and a half; it was irregular in shape, considerably lobulated above and below, very convex anteriorly, somewhat flattened posteriorly. The capsule was semi-adherent, and when removed, the kidney displayed a finely granular (salubrous) surface, pale in color, with a few stellar vessels scattered over it. The interior, on a section being made, displayed the usual fine granular exudation infiltrating the whole structure, fraying out the base of the cones, and contrasting in color with the pale-red striated appearance of this pyramidal portion of the organ. The right kidney weighed five ounces and three-quarters, the cones were more deeply injected than the other kidney, but in other respects the morbid conditions were similar, the disease not having advanced to the same point, one kidney being usually behind the other in progress.

A careful microscopic examination of these kidneys was made. The white deposit surrounding the cones, and constituting the mass of the disease, was

composed of abortive cells, imbedded in what appeared to be a fine granular exudation. This granular matter pervaded the whole organ, and was principally interstitial in regard to its relation to the tubes, as but little tubular structure could be discovered in it. The Malpighian bodies, however, appeared stuffed with this exudation, and the few tubes which were teased out of the deposit, appeared blocked up with it. The epithelial cells along the walls of the tubes, at the base of the cones, appeared undisturbed, but compressed by the contents of the canal. The straight tubes at the apex of the cones were free open canals, the epithelium presenting a natural appearance: but here and there a large straight tube was observed choked with fibrinous coagula, of a brownish-yellow color.

ART. 61.—On the absence of Odorous Principles in the Urine in Bright's Disease.
By Dr. DE BEAUVAIS.

(*Comptes Rendus*, Oct. 25, 1855.)

Dr. de Beauvais looks upon an inodorous condition of the urine as a constant accompaniment of Bright's disease. Clinical inquiries, often repeated, he tells us, have convinced him that this condition of the urine is pathognomonic of this disease, that it continues even when the symptom of albuminuria is temporarily absent, and that it never accompanies those forms of albuminuria which are not dependent upon Bright's disease. Dr. de Beauvais adds, also, that this inodorous condition of the urine is not changed by the ingestion of turpentine, asparagus, or any other substance, the action of which under ordinary circumstances, is to communicate a strong and peculiar odor to the urine.

ART. 62.—On the use of Tannin in Albuminous Anasarca.
By Dr. P. GARNIER.

(*Archiv. Gén. de Méd.*, Jan. 1859.)

In this paper Dr. Garnier gives nine cases, for the purpose of showing that tannin, in daily doses of thirty to sixty grains, is of great use in relieving or curing the passive oedema or anasarca which accompanies albuminous urine. The change for the better is not at all deferred, and in two or three days the urine becomes more abundant and natural, the perspiration more copious, the stools less costive, the appetite better, and so on. The evidence, however, does not appear to warrant all these favorable conclusions.

ART. 63.—On the use of Iodine in Diabetes.
By Dr. DICK, Professor of Medicine in the Edinburgh Veterinary College.

(*Edin. Med. Journal*, Nov. 1858.)

In a notice of Dr. Stokvis's researches on the formation of sugar in the liver, it is mentioned incidentally that Professor Dick has found iodine in large doses, ʒj twice or thrice a day, a perfect cure for diabetes in the horse. It is suggested, also, that this remedy might be serviceable in the saccharine diabetes of man, and the suggestion is certainly one which deserves to be attended to, for iodine has certainly a marked action on the organ which is a good deal concerned in the production of the sugar, namely, the liver.

ART. 64.—Sugar in the Tears in Diabetes. By Dr. GIBB.

(*Proc. of the Path. Society*, May 4, 1858.)

CASE.—On the 20th April, 1858, Dr. Gibb examined some tears in a small tube, shed by Mrs. W—, a lady, æt. 21, who has been affected with diabetes mellitus for two years, ever since she weaned her only child. A drop or two of Barreswill's solution of copper were added, the fluid was boiled over a spirit lamp, and at once gave an abundant precipitate of the yellow sub-oxide of copper. The same experiment with an equal bulk of the urine, showed that there was a much larger proportion of sugar present in the tears. The specific

gravity of the urine was 1043. A drop of each fluid was evaporated on a piece of glass, when that from the tears showed a much thicker and more opaque crust than was yielded by the urine. On the 9th of April, when she first came under my care, her urine was passed in quantities, varying from twelve to fifteen pints a day, and she drank at least eight pints of fluid in the twenty-four hours. Now, the quantity is perfectly natural, her thirst is diminished, and she takes her usual allowance of food and drink. The urine is still highly saccharine.

ART. 65.—*Notes on Pigment in the Urine.*

By DR. A. J. PAINE, Bengal Medical Service.

(*Indian Annals of Med. Science*, July, 1858.)

Dr. Paine relates several cases which appear to show that when the function of the liver is not duly discharged, whether the organ be itself primarily affected, or whether it be involved consecutively in some more general disorder, an increased proportion of pigment in the urine will generally serve us as evidence of the fact; and that this increase, when present, may safely be taken as a positive indication of hepatic disturbance, even though there be no other symptom to confirm it; and, negatively, as a necessary consequence of the first position, and with the same exceptions to be specified hereafter, if the state of the urine be normal, it affords very strong presumption that the liver is healthy.

The state of the liver indicated by this pigmented urine is no doubt an incipient stage of that which, further developed, produces jaundice from arrest of biliary secretion. It is a comparatively rare occurrence that this latter stage is reached, though it happens now and then before our eyes that the lesser is the precursor of the greater change. When it is remembered that extreme jaundice occasionally takes place without giving rise to any alarming symptoms, it need create but little surprise that the same condition, less developed, should commonly escape detection—in other words, that, in patients in whom no symptoms have occurred to direct attention to the liver, the urine, when examined, should be found to give evidence of imperfect discharge of its function. It must not, however, be inferred that a highly pigmented urine always expresses a state of systemic disorder, or indicates that specific treatment is required. Many instances undoubtedly occur where marks of former disease of the liver exist, although the patient has to all intents and purposes recovered. Without being sufficient to impair the general health, the change will show itself in the state of the urine, as a transfer of function from the liver to the kidney; and, if this be held to prove that recovery from former attacks is incomplete, and treatment be again directed to the liver, there is danger of lighting up fresh disease in that organ. It appears that, in those cases, though the liver has not been restored to health throughout its whole volume, yet, physiologically speaking, recovery has been complete, diseased action has ceased to go on, the remainder of the gland works well, and a compensatory process has been set up in the kidney, whereby an abnormal quantity of highly carbonized matter is eliminated from the blood, and the failure of a portion of the liver is repaired. It is further probable that, if this vicarious excretion were to cease, the symptoms of inadequate liver would present themselves; as is seen in cases of jaundice, where the disappearance of pigment from the urine becomes a sign of very serious import.

There are few, who, when examining the bodies of persons dead of various diseases, have not found marks of former lesions in the liver, fissures, and cicatrices of different shapes. These had given no evidence of their presence during life, but it is probable that excess of carbonized matter would have been found in the urine, if it had been sought for.

Further, the quantity of pigment in the urine is no index of the severity of disease; that is, it is not a measure of the permanent effect to be apprehended. It is very small in some fatal cases of abscess, and very large in others where there is only congestion. It is extent, not intensity of disease, and interruption of proper function, that are measured; the effect, in fact, on the purification of the blood, but on no other vital process.

"It is scarcely necessary, after the foregoing remarks, to point out that this sign will not assist us in diagnosing the several diseases of the liver from each other. This must be done by consideration of the conditions under which the disease has arisen. The pigments tell us that something is wrong, that there is an omission on the part of the liver. They do not indicate what is going on instead of its proper function, but simply that the latter is in abeyance, and they gauge the degree to which it is suspended. It is possible, however, that the difference discoverable by chemistry between the peculiar pigment of the urine and that of the bile in urine may, ultimately, serve us as a means of diagnosing jaundice, the result of suppressed secretion, from that which follows on closure of the ducts. Dr. Budd anticipates that some such diagnostic sign will be found in the urine, and inclines to the supposition that oxalate of lime may afford assistance: but, since it has been shown by Dr. Owen Rees that the latter product is commonly found under circumstances which determine a deposit of lithates, we may expect to see it under all conditions which embarrass the portal circulation, and cannot hope to use it as diagnostic of any peculiar affection. At the same time, it is possible that the oxalate may be in closer relation with the highly carbonized pigment than is generally supposed, an idea suggested to me by the fact that—while, as in Dr. Rees's experiments, the characteristic crystals appear readily on heating the colored deposit of lithates—no such result follows with the pale variety."

The phenomena presented by pigmented urine and the mode of examination are also fully gone into by Dr. Paine, and his remarks upon these subjects are well deserving of attention.

(F) CONCERNING THE CUTANEOUS SYSTEM.

ART. 66.—On the nature, causes, statistics, and treatment of *Erysipelas*. By Mr. PETER HINCKES BIRD.

(Pamphlet, Churchill, pp. 60, 1853.)

The design of this essay is to establish that the distinctive characteristic of *erysipelas*, and the diseases allied to it, is their origin in a morbid poison in immediate connection with an unhealthy condition of the system. A subtle poisonous matter enters the blood, constituting, in fact, a true blood-poison disease, and the almost universal rule, that the presence of a poison in the blood is productive of a direct and special operation on the skin, follows, in this particular instance, causing *erysipelas*.

But what Mr. Bird particularly wishes to insist upon is, that the characteristics of this diffuse inflammation may be manifested in other tissues than the skin or subcutaneous cellular membrane, and that there is no conclusive reason why this species of inflammation should be confined to the external surface of the body; indeed, many acute and experienced observers have recorded instances without number, internal parts presenting every specific mark of that diffuse inflammation which, when confined to the skin, is termed *erysipelas*. Some accidental cause may determine in which tissue it shall appear. In a person predisposed to this form of inflammation, it may become developed wherever the immediate excitement may be thrown. Thus, if it be a wound, *erysipelas* will appear; if a sloughing bubo, strangulated hernia, or recent delivery, diffuse inflammation of the peritoneum will result; if a punctured vein, diffuse phlebitis, &c.

Some writers go so far as to include all diffuse inflammations under the word *erysipelas*, but Mr. Bird doubts the advantages of stretching the application of the term so far, and thinks, the term "diffuse inflammation" is wide enough to include the facts and liable to no misconception or obscurity; agreeing with Hildenbrand, who justly observes—"Absente dermatitis typo, etiam *erysipelatis* characterem amittunt."

These alliances of *erysipelas* may be thus grouped together:—

1. Diffuse inflammation of the cellular tissue.
2. Diffuse inflammation of the mucous membranes.
3. Diffuse inflammation of the serous membranes.

1. *Diffuse inflammation of the Cellular Tissue.*

There is much evidence in favor of the opinion of the close affinity between erysipelas and diffuse inflammation of the cellular tissue. The general and many of the local symptoms of diffuse inflammation of the cellular tissue closely resemble those of erysipelas. The commencement of the disease is marked by the same general derangement, and the constitutional symptoms are of the same character; the changes locally produced by erysipelas in its cellulo-cutaneous form and diffuse cellular inflammation are wonderfully alike: the predisposing causes are the same, the results identical if resolution does not take place. Diffuse cellular inflammation occurs in connection with puerperal fever, a disease which, as will be afterwards shown, is closely allied to erysipelas. Diffuse cellular inflammation and erysipelas prevail epidemically at the same time. One form of the disease is extremely liable to produce the other in a second person; and the two forms of disease are mutually capable of exciting each other.

Many circumstances connected with the coincident appearances and causes—the circumstances under which it is most rife, its mode of propagation, its accompanying local and constitutional phenomena, the prevalence of the two diseases at the same time—induce a strong suspicion of a close alliance between hospital gangrene, malignant pustule, and erysipelas.

2. *Diffuse inflammation of the Mucous Membranes.*

Numerous writers refer to the close affinity between erysipelas and diffuse inflammation of the mucous membranes.

There is strong evidence in favor of the opinion that emanations from those with erysipelas will produce diffuse inflammation of these membranes; and Dr. Bird has met with several cases in which a direct extension of the diffuse inflammation had manifested itself from the fauces to the external skin by the anterior nares and lachrymal passages, and *cere cereâ*; and the extension of the diffuse inflammation down the throat has been observed to appear around the wound of tracheotomy in the form of erysipelas.

A diffuse inflammatory state of the fauces has been mentioned as a precursor of erysipelas, and this is so frequently the case that it was observed in nearly 60 per cent. of the cases of idiopathic erysipelas of the face of which the author has taken notes, and is therefore included in the definition of the term; it was sometimes observed in idiopathic, and occasionally, but much more rarely, in traumatic erysipelas of the extremities. How is this more frequent occurrence in idiopathic than in traumatic erysipelas to be accounted for? Is it that the virus in being inhaled into the lungs makes a direct impression on the throat, while in its entrance into the circulation by means of a wound this mode of contact is avoided?

Some interesting cases have been witnessed of erysipelas spreading down the throat, and also of extending up the vagina and rectum.

The author remembers the case of a woman who, after rigors, had diffuse inflammation of the throat, which spread upwards from the nostrils and mouth to the face; and from the violent retching and distressing sickness, excessive flatulence and relaxed bowels, it seemed probable that it even spread down the alimentary canal to some extent. Wine, which was the only thing that could be retained on the stomach, was liberally given, and she recovered.

Diffuse inflammation of the mucous membrane is not unfrequent in those attending on cases of puerperal fever; the value of this fact will be appreciated when the alliance between erysipelas and puerperal fever is determined.

There are occasionally observed, in the surgical wards of hospitals, other cases which seem to point out clearly the alliances of erysipelas; thus, supposing there are several cases of erysipelas of the head, face, or extremities, patients who have taken neither mercury nor iodine become subject to acute stomatitis, others have swelling and tenderness of the tongue, accompanied with diffuse inflammation of the fauces, and considerable constitutional disturbance.

From the occurrence of these cases of cynanche with ordinary erysipelas,

from the fact that we can often trace the continuity of inflammation from the fauces to the face, through one or several of the passages by which the mucous membrane is continuous with the skin, and *vice versa*, from the connection of these with occasional glossitis and stomatitis, from the condition of the mucous membrane accompanying these affections, and from the general testimony in favor of its contagiousness, we can but conclude that these affections are instances of these structures being attacked by diffuse inflammation, which when limited to the skin, is properly termed erysipelas.

3. Diffuse inflammation of Serous Membranes.

Various writers have included these affections under the term "erysipelas," and the evidence to be produced will serve to prove the strong alliance existing between them.

(a) *Diffuse arachnitis*.—It is difficult to say how far diffuse arachnitis is allied to erysipelas; but it is pretty certain that in many cases of erysipelas of the head this alliance can be traced. Alibert evidently inclines to the opinion that the membranes of the brain may be affected by diffuse inflammation in connection with erysipelas. Nunneley believes that the frequent purulent deposits in various viscera will never or rarely be found to follow accidents to the head, unless preceded by diffuse arachnitis; but in patients who have died from erysipelas of the head the author has by no means found this condition of frequent occurrence.

(b) *Diffuse inflammation of the peritoneum, pleura, pericardium, &c.*—Diffuse inflammation of these membranes has been frequently noticed supervening upon erysipelas.

(c) *Puerperal fever*.—Writers even from an early period suggested, and the limited testimony of later authors confirm, the connection which exists between erysipelas and puerperal fever. It was first observed and insisted upon by Pouteau, in 1750, who considered the puerperal fever as it then prevailed in Paris as an epidemic erysipelas of the peritoneum, and others subsequently maintained this opinion.

The following is striking evidence in favor of this opinion. The local symptoms during life and the appearances after death are identical, allowance being made for the different situation and texture of the parts attacked; both puerperal fever and erysipelas arise under the same circumstances, in crowded and close wards; both diseases are marked by great disposition to the formation of unhealthy pus; the same danger attends inoculation with the fluids effused in puerperal fever, and the immediate development of erysipelas or malignant pustule in the part inoculated; both erysipelas and puerperal fever may exist in the same patient; they prevail at the same time; and may during life mutually produce each other in a second person.

(d) *Diffuse inflammation of veins, arteries, and lymphatics*.—Diffuse phlebitis. The alliance between these affections and erysipelas may at first glance appear slight, but many circumstances tend to point out a closer connection.

So similar are the constitutional and even the local symptoms of diffuse phlebitis and erysipelas, that even the best observers have made errors in diagnosis. In both these diseases there is the same disposition to the deposition of pus in different organs, and for inflammation and imperfect suppuration to be set up in distant parts of the body; there is the same tendency for the serous membranes to become affected; both diseases depend upon constitutional causes, more than upon the immediate exciting cause; one form of complaint is very liable to produce the other; and it has been observed that the same condition of atmosphere conduces to erysipelas and diffuse phlebitis. Abundant evidence has already been brought forward to substantiate the opinion, that puerperal fever prevails most when erysipelas and other diffuse inflammations are rife—produces them, and is produced by them; and as one form of puerperal fever consists in diffuse inflammation of the uterine veins, much of the evidence in proof of the close alliance between erysipelas and puerperal fever is applicable here.

Diffuse inflammation of arteries. It is probable that, like other serous membranes, the internal structure of the arteries may be subject to diffuse

inflammation, in connection with erysipelas, but Mr. Bird has not met with any instances. Guthrie speaks of erysipelatous inflammation of arteries, and gives three instances.

Diffuse inflammation of lymphatics. As the lymphatics, owing to their general and dense distribution within as well as between all the organs of the body, necessarily take part in every inflammation, they are no exception to the general rule.

The two diseases are occasionally observed to be complicated to a remarkable extent; many patients affected with angioleucitis being soon after attacked with cutaneous or cellulæo-cutaneous erysipelas, and *vice versa*, those who were first attacked with erysipelas soon presenting it complicated with angioleucitis.

The following analysis of 260 cases of erysipelas, of which Mr. Bird has notes, may prove interesting:—

		Men	Women	Total.
Idiopathic of face, head, &c.		34	51	85
Traumatic of ditto		27	13	40
Idiopathic of extremities		27	22	49
Traumatic of ditto		59	27	86
				260

Of forty-nine cases of idiopathic erysipelas of the face in women, and of thirty-two in men, it was observed that the disease attacked the different parts of the face in the following order of frequency:—

	Women.	Men.
Right side of face	29 or 59.0 pr. ct.	17 or 50.0 pr. ct.
Left side of face	10 19.6 "	10 29.4 "
Middle line of face	7 13.7 "	4 11.8 "
Both sides at same time	3 5.9 "	1 2.9 "

In these 260 cases, twenty deaths occurred, or 7.5 per cent. Of these, one case was complicated with severe burn, one with dropsy after scarlet fever, one with advanced phlebitis, one with a severe scalp wound, two were in articulo mortis when seized, another was dying from extreme neglect before admission.

These 260 cases occurred in the seasons in the following order:—

Spring, 66	Summer, 49	Autumn, 50	Winter, 80
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Thus it would appear that erysipelas is more frequent in winter and spring; and that it is more fatal in the metropolis during these seasons, the following extracts from the returns of the Registrar-General will prove:—

	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	Total.
Spring	95	71	116	196	137	119	81	120	86	96	1117
Summer	80	78	107	129	114	103	74	93	74	115	972
Autumn	56	92	126	128	99	65	76	54	80	109	875
Winter	77	106	176	126	109	87	116	67	84	128	1076

As to treatment, Mr. Bird concludes that erysipelas is best treated by stimulants and support, and, when complicated with inflammation of the sub-cutaneous cellular tissue, by early incisions, which should extend to the depth of the tissues.

The paper concludes with an elaborate analysis of the work of Feuger—*"De Erysipelate Ambulanti Disquisitio."*

ART. 67.—On *Macula Cachectica*. By Dr. JAMES WHITEHEAD.

(Third Report of the Clinical Hospital, Manchester, 1859.)

"A maculated state of the skin," says Dr. Whitehead, "is frequently met with in the children of this class of people, consisting of small circular spots the size of face freckles; not, however, occupying the face and hands as freckles do, but every other part of the body except the feet. They seem to infest parts covered by the clothing, while freckles are only seen on parts exposed. They have a purple color, like the macule of typhus—not a pale yellow like freckles, and are unassociated with any form of disease saliently expressed; but they seem, nevertheless, to indicate a depraved habit of body. The skin has a sickly, opaque pallor, the flesh is flabby, the temper fretful, and the energy subdued. The parents appear to regard their presence as natural and unavoidable, as they are never the subject of treatment, nor is attention directed to them when the body is examined for other purposes. They seem peculiar to the lowest classes, and are caused by sloth and personal neglect, as they are never met with in the offspring of the cleanly and thrifty.

"There is no doubt that this *macula cachectica* is in reality a disease of the skin, due, proximately, to interrupted cutaneous transpiration. Its cause is uncleanness. Such children are seldom washed, except the hands and face, oftener than once in many weeks, and even then very imperfectly and without the use of soap. When the children get older, and the washing process is left to themselves, it is still less perfectly done, and the whole body is not washed, in the vast majority of instances, once in several years. In such persons the spots which appeared in infancy, are often seen up to adult life."

ART. 68.—Case of *Chromidrosis*. By Dr. MAKER, of Colmar.

(Gaz. des Hôpitaux, No. 6, 1858.)

CASE.—Marie V., of Wettolysheim, near Colmar, æt. 19, a blonde, having a white skin, and always delicate in constitution. She began to menstruate at 13, but menstruation was never established regularly. Three years ago she suffered for several months from amenorrhœa. Twice in 1855 her face exhibited for some weeks a decidedly bluish color. This bluish color returned in March, 1858, and became more and more marked until the time when Dr. Maker saw her (26th September, 1858), when at first sight her face, neck, arms, and hands, seemed all over bruised. The color, which was deepest about the eyes, was of a full indigo blue. On rubbing the skin with an oiled linen cloth, the blueness might be completely wiped away, and the skin restored to its natural condition; on examining with a lens, the coloring matter was seen as a fine dust deposited in the cutaneous crevices. The color became much deeper during exercise or under the warm rays of the sun; it was also somewhat deeper in the morning than at a later period of the day. Occasionally, also, the saliva had a decided bluish tint. As to the rest, the patient was dyspeptic and anemic, and for some time she had suffered from profuse leucorrhœa. An analysis of the coloring matter showed that it was analogous, if not identical with indigo.

ART. 69.—On the occurrence of *Bots* in the human subject. By (1) Dr. G. W. SPENCER, of Lerwick, Shetland, and (2) Dr. J. MATTHEWS DUNCAN, of Edinburgh.

(Edin. Med. Journal, Nov. 1858; Edin. Vet. Review, Jan. 1859; and Medico-Chir. Review, April, 1859.)

Alexander Von Humboldt so frequently found the natives of South America affected with a number of the genus *Estus*, an insect of the order Diptera, that he established a distinct species, under the name *Estus humanus*. Kirby and Spence, Kirchenmeister and others, dispute the propriety of this distinction, and Dr. Spence and Dr. Duncan bring forward fresh arguments and facts as well as cases that fell under their own observation, in proof of the view that *Estus humanus* is merely a transference of one of the varieties of the bots found on animals to the human body. In our October number (1858) we

quoted from the 'Archives Générales' an interesting account by Dr. Coquerel of the development of the larvæ of a Diptera in the frontal sinuses and nasal fossæ of man. In Dr. Duncan's case, the symptoms were less severe; it is as follows:—

E. C—, a girl, æt. 13, came from Perthshire in September, 1853, to reside in Edinburgh. She had never been in bad health till shortly after leaving the country, when she began to suffer pains which she connected with the lute. She first felt a little lump on the back of the neck, which slowly changed its position in various directions: then a hole opened over it, and a worm was squeezed out. Some weeks afterwards, another similar lump was felt on the right side of the trunk. It also wandered about subcutaneously, till a hole opened over it, and it was forcibly rubbed out. A third made its appearance over the spine, high in the chest, then travelled up the neck, when for a time it was lost, and was supposed to reappear on the right side of the neck, where a hole formed over it. Dr. Duncan was now (3d March) fortunate enough to be called, and observed a small, not inflamed tumor, of the size of a large shell pea, and having an opening on the top as big as a pin's head. In this hole Dr. Duncan saw one or two black points rolling about. On squeezing moderately the little lump, there was discharged a living larva half an inch long, evidently of the *Cyrtus bovis*, and the same as those previously noticed by the girl. A little dirty-yellow juice issued with the animal, containing a few blood-globules and pus-corpuscles. The girl said that while in Perthshire herding cows, she was much exposed to the air, and was frequently stung by insects.

It appears from Dr. Spence's paper, that in the Shetland Isles the human subject is peculiarly subject to being attacked by the skin-bots; the larvæ occur in exposed parts of the body, and in women who are loosely dressed. They have generally been engaged during the summer in working with peats, in localities where cattle were numerous; in some instances they had lain down on the grass and fallen asleep. Dr. Spence's patients never remembered having felt a sting; they were engaged in the only occupation by which people in Shetland are liable to be detained in localities where the gad-fly or bot-fly may be met with.

The patient's attention, according to Dr. Spence, is first attracted by a severe burning pain under the skin, in a circumscribed spot. It is next observed that the seat of pain shifts its position, and that the course between the two spots is marked by a reddish or ecchymosed line, which fades in a few days. This movement of the seat of pain, attended with a thin linear discoloration of the skin marking its track, may almost be considered as a diagnostic sign. The rate of progress varies; in one case, Dr. Spence traced it between the 29th September to the 10th October, from the left hip to above the left mamma. The larvæ appear to drop out after a time of their own accord, but the safest and most expeditious plan is, as soon as their nidus is ascertained, to cut down upon and remove them.

ART. 70.—On "*Sapo Laricis*" in Cutaneous Diseases. By Dr. MOORE.

(*Dublin Hospital Gazette*, March 15, 1859.)

Dr. Moore having referred to some cases of subacute and chronic affections of the skin, in which he found the internal and local exhibition of larch bark very efficacious, alluded to the difficulty of applying the ointment in cases of extensive psoriasis, ichthyosis, or similar forms of disease, in which entire extremities, or even the whole body, may be implicated; accordingly the preparation of the following soap suggested itself to him as being equally effective and easier of application:—

Tako Wheaten bran, ℥iv :
White curd soap, ℥xxiv :
Pure glycerine, ℥ij :
Extract of larch bark, ℥vj :
Rose water, ℥xij.

* The proportion of the extract may be increased or diminished to suit the severity of the case, or otherwise.

The twenty-four ounces of white curd soap were dissolved in twelve ounces of rose water, by means of a steam bath; the four ounces of wheaten bran were infused in ten ounces of cold water for twenty-four hours and expressed; to the expressed liquor the three ounces of pure glycerine* were added; the six drachms of the extract of larch bark were dissolved in one ounce of boiling water; these solutions when mixed were added to the dissolved soap. The superfluous water was evaporated by means of a steam bath, until the soap became of a proper consistence for pouring into moulds. The product is a soap of a dark claret color, with rather an agreeable smell.

Dr. Moore found this soap very efficacious in the local treatment of psoriasis, pityriasis, chronic herpetic and eczematous affections; it may be applied once or twice daily, according to circumstances, and allowed to dry on the part; when the necessary ablutions are required, lotions of bran-water, or pure water with carb. soda (℥ss to ℥j to Oj) will be found usually most suitable; occasionally more stimulating lotions may be indicated.

* Besides the lubricating properties of the glycerine, chemically, its solvent action on the tannin in the larch bark is of great importance.

PART II.—SURGERY.

SECT. I.—GENERAL QUESTIONS IN SURGERY.

(A) CONCERNING INFLAMMATION.

ART. 71.—*The Treatment of Burns by Constant Warm Baths.*
By Dr. PASSAVANT.

(*Deutsche Klinik*, Nos. 36, 38, and 39, 1859.)

Dr. PASSAVANT's experiments were made in the hospital at Frankfort upon eighteen persons who had been all more or less seriously burnt in the explosion of a firework manufactory. The apparatus used was analogous to that used by Langenbeck in the treatment of amputations; the water, which was changed twice a day, or oftener if the suppuration was abundant, was kept at 27° Reaumur; and at the end of some weeks, when the patients had become tired of them, the baths were changed for fomentations. The results are represented as being very satisfactory. Under their use pain and inflammation very soon came to an end. The hardened tissues became soft, and the eschara separated easily. The chances of irritation and purulent absorption became greatly diminished; and cicatrization proceeds more rapidly.

(B) CONCERNING TUMORS.

ART. 72.—*A Contribution to the Statistics of Cancer, collected from the Records of the Middelsex Hospital.* By Mr. SISLER.

(*Proc. of R. Med.-Chir. Soc.*, March 8, 1859.)

This paper is the result of an examination of 519 cases of cancer, with the records of 172 *post-mortem* examinations. The more recent cases have been reported with uniformity and with some degree of fulness; some of the older cases were less perfect. The diseases embraced within the limits of the paper are defined, and distinguished from those which had been excluded from consideration. A table is then given, in which the seat of the primary cancer in each of the 519 cases is exhibited. There are 103 instances in the male, and 416 in the female; amongst the latter are 191 cases of cancer of the breast, and 156 of uterine cancer.

There are three examples under the age of ten (all males), and one between the age of ten and twenty. Tables are given, in which the ages are arranged in decennial periods, the cases of breast and of uterine cancer being placed in separate groups. The average age of those attacked with uterine cancer is 42.28 years, with breast cancer, 48.6.

Of the female cancer patients, 83 per cent. either are or had been married, and amongst the single women the disease occurs oftener in the breast than in the uterus. Of the married women, 86 per cent. of the uterine, and 74 per cent. of the patients with breast cancer, have borne children. The average number of the births is 5.2 among the former, and 3.89 among the latter. The interval between the last pregnancy, and the proportion attacked before and after the cessation of the catamenia, are given.

The duration of life (from the first discovery of the disease), in patients who had not been operated on, varies greatly in the different classes of cases. In the breast it is 32½ months; in the uterus, 14; in the stomach, 8½; in the rec-

tum 34; in the lip, face, &c., 53; in the penis, 34; in the bones, 10; in the labium, 29. These figures are not perfectly comparable, as in some cases, especially the external cancers, the period given is the entire duration of the disease, while in others (as in the stomach) the period is only that during which the symptoms were present.

An account is then given of the operations (by the knife) in cases of cancer of the breast. Three patients out of 60 died from the effects of the operation. The average duration of life of those who were operated on is 53.2 months. In comparing this with the duration of life in cases in which the disease was allowed to run its natural course (32.25 months), it should be remembered that the cases submitted to operation are more or less selected cases.

As to the hereditary nature of the affection, the difficulties in obtaining accurate information upon this point are first alluded to. The chief of these is the very imperfect knowledge which most people, but more especially hospital patients, possess of the diseases to which their relatives had been subject. Out of 505 cases, in which the point had been particularly inquired into, 34 patients remembered to have had a relation affected with cancer. A table is given of the seat of the disease in each of the 34 cases, in 17 of which the breast was the part affected. Tables are also given, in which the degree of relationship of the cancerous relative is shown, and also the proportion affected on the father's and on the mother's side. Out of the 34 cases, in six more than one relative was cancerous, and in one instance (the chief features of which are mentioned) no fewer than five relatives suffered from cancer.

Phthisis existed in 50 cancerous families out of 130. Similar tables to those before mentioned were given, in which the degree of kinship was exhibited; it being also noted whether the disease was on the father's or the mother's side.

The notes of the 172 *post-mortem* examinations are next analyzed. In the first place, a table is given, in which the seat of the primary cancer in each instance is exhibited. The cases are arranged in the following groups: 1. Cancer of the breast. 2. Cancer of the uterus. 3. True cancer of the other organs. 4. Epithelial cancer. A series of tables follows, in which the secondary cancers are enumerated, and the cases arranged as follows: a. The disease strictly local. b. Involving also the lymphatics of the part. c. Involving the lungs and other parts, the liver being unaffected. d. The liver cancerous, the lungs being free from this disease. e. Those cases in which there were tumors in distant parts of the body, but both the lungs and liver were free from the disease. In each form of the affection, a list of the non-cancerous diseases found in the bodies of the cancer patients was appended.

The bearing of the foregoing facts on the mode in which cancer is disseminated throughout the body is next alluded to, three distinct modes of multiplication being recognized: 1st, the growth of tumors in the immediate neighborhood of the cancer; 2d, the development of cancer in the lymphatics of the part; 3d, the formation of cancerous tumors in distant parts of the body.

In regard to the cachexia, it was noticed that this condition only became developed as the ulceration and sloughing extended, and could not be attributed to pre-existing changes in the condition of the blood of the patient. In nearly all instances the patient died from the ordinary effects of ulceration, or from the interference with vital functions.

(C) CONCERNING WOUNDS AND ULCERS.

ART. 73.—On the treatment of Wounds and Ulcers by Ventilation.

By Dr. J. BONISSON, of Montpellier.

(Comptes Rendus, Oct. 4, 1858.)

By means of an ordinary bellows, or by some special contrivance for producing a draught of air, Dr. Bonisson dries up the effused fluid, and obtains in this manner, a crust by which the wounds or ulcers are covered and protected. The process of healing, he tells us, advances more favorably, and more rapidly,

under these circumstances—*subcrustean* cicatrization being for open wounds what *subcutaneous* cicatrization is for closed wounds. One of the advantages of this plan is the saving which it effects in charpie and other dressings.

(D) CONCERNING FRACTURES AND DISLOCATIONS.

ART. 74.—*Additions to the statistics of Fractures.*
By Dr. O. HEYFELDER, of Munich.

(*Dublin Quarterly Journal of Medicine*, Nov. 1858.)

Dr O. Heyfelder's individual calculations are made upon 562 fractures which were admitted into the University Hospital at Erlangen, between 1842 and 1854. To these calculations are added those of Middeldorf and Malgaigne; and the mean frequency of breaking, as regards the different bones, is as follows: Both bones of leg, 1 in 7; femur, 1 in 7; ribs, 1 in 9, and so on.

Both bones of leg	1	Tibia	1
Femur	1	Patella	1
Ribs	1	Metacarpus	1
Forearm	1	Mandibula	1
Radius	1	Olecranon	1
Clavicle	1	Vertebrae	1
Humerus	1	Bones of the toes	1
Cranium	1	Pelvis	1
Fibula	1	Scapula	1
Bones of the face	1	Tarsus	1
Bones of the fingers	1	Metatarsus	1
Ulna	1	Sternum	1

ART. 75.—*On the treatment of Sprains by Friction and Shampooing.*
By M. GIRARD.

(*Mon. des Hopitaux*, No. 140; and *Med.-Chir. Rev.*, Jan. 1859.)

In this paper, laid before the "Académie de Médecine," M. Girard states that his attention was first directed to the plan of treatment he describes by the manipulations of an empiric. So successful were those in a bad case of sprain, that he determined to investigate the subject, and as the result of numerous trials, he now proposes what he believes to be a very effectual and a rapid procedure, for the treatment of what too often proves a very tedious and serious affection.

No matter what the severity of the sprain may be, its treatment should be commenced by the gentlest friction, the points of the fingers scarcely touching the skin. After practising such frictions from below upwards for from ten to twenty minutes, it will be almost always found that a certain amount of pressure can be borne, and this is to be increased or diminished according to the sensations of the patient.

It is very rare that we can proceed in this manner for half an hour without the patient declaring that his pain is notably relieved. Arrived at this point, when the patient can bear the weight of the hand, we proceed to the shampooing. This is performed not only with the fingers (which, kept close together during the frictions, are now to be separated, so as to pass into the various sinuosities of the part), but also with the palm of the hand, so as to embrace the entire joint and surrounding parts. The hand in both this and the former part of the procedure should be smeared with some fatty body, such as almond oil, so as to render its movements more soft and easy. The shampooing must be performed in the gentlest manner, without shocks, directed from below upwards, and acting not only on the painful points, but upon all those that are tumefied.

If pain is excited by an attempt at moving the joint, we must return to shampooing until new trials have proved that flexion and extension cease to

excite painful sensations. Such movements would be very painful, or even dangerous, if performed at an early stage of the treatment. They do not, however, constitute any part of the treatment itself, and are only resorted to as a means of appreciating the results derived from the shampooing. In several cases in which the cure had been considered as complete, the pains have returned next day, accompanied by more or less febrile reaction. A single reapplication of the shampooing has sufficed to dissipate them, and in most cases, twenty-four's rest, and the application of a bandage moistened with spirit of camphor, has sufficed for this. This bandage, indeed, is useful in all cases, and should be worn for two or three days.

This procedure is applicable to both old and recent sprains, and even when there has been present also a fracture of the fibula, shampooing has effected a remarkable diminution of pain and swelling, enabling the surgeon sooner to ascertain the exact nature of the case. Several cases of severe, recent, and old sprains are referred to, in which two or three hours of this shampooing process has effected an entire cure.

(E) CONCERNING OPERATIONS.

ART. 76.—*On Amputations.* By Mr. JOHN RUSSELL, of Merthyr Tydvil.

(*Glasgow Med. Journ.*, Jan. 1858.)

In this paper Mr. Russell wishes to draw attention to the great difference between amputations performed on limbs which have been shrunk from disease and inaction, and those which are performed on sound and healthy limbs.

"A young operator, whose only experience has been on the dead subject, should he be called upon to operate upon a limb in the first condition above described, would find an absence of all elasticity of skin, cellular tissue, and muscle; and he would find no unequal retraction of parts, and probably no natural separation or retraction of them; and, should he have followed strictly the directions laid down by authorities, he would find the result correspond with his own previous practice on the dead subject, and his operation would necessarily be followed by a flattering stump.

"But, in case of a limb in the opposite condition, he would find circumstances very different, and be very likely disappointed at the result, as, in such a case, all structures would be found in the highest degree elastic, and the retraction of them very unequal. The skin would retract most, and the muscles (each layer) less and less towards the centre of the limb, thereby causing somewhat of a convex instead of a concave flap.

"The contrast between these two conditions has appeared to me so striking, that it surprises me so little notice has been taken of it. I have looked through Lister's, Skey's, and Erichsen's works on operative surgery, for suggestions applying to the different cases; but the only one bearing upon the point is the plan proposed by Mr. Skey in amputations (I believe?) in general; viz., that of pressing up the muscles under the protection of the bone with the flat hand before transfixing, preparatory to making the posterior flap. I have not tried this plan. It appears to me, however, that, in so doing, the surgeon must sacrifice skin as well as muscle, although not in the ordinary proportions. And I fear that the palm of the hand, and more especially the ball of the thumb, must be inconveniently near the knife.

"My own plan has been to make two lateral incisions through the skin, then to grasp a fold of it between the finger and thumb (similar to the fold seized when lifting a dog by the nape of the neck), before transfixing for the posterior flap; and to carry the hand down, keeping pace with the knife, until sufficient flap has been secured; then to cut out. By this plan there is great gain of integument, and sacrifice of useless muscle; and the operator's hand is safely out of the way of the knife. The sacrifice of muscle will be found of great advantage; and the limb should be transfixed close to the margins of the drawn skin. It is hardly possible to save too much skin, for, however bulky and unseemly it may look at the time, it will eventually contract to the dimensions

of the stump. The occasional difficulty of securing the vessels, after amputation of the leg, suggests the plan of carefully passing the knife perpendicularly and square to the plane of the bones, a short distance below the intended site of sawing through them, and then cutting up a short way close to each; thus leaving a tongue of muscle and ligament between the bones which would contain the vessels."

Art. 77.—On the Causes of Death after Amputation. By Mr. BARANT, Assistant-Surgeon to Guy's Hospital.

(*Proc. of the Roy. Med and Chir. Soc., Feb. 22, 1869.*)

This paper is based upon an analysis of 300 cases of amputation, collected from the records of Guy's Hospital. The author has divided them into four classes, and although he has not thought it necessary to alter the ordinary division of traumatic amputations into primary and secondary, he has made some change in the division of the other forms; for it became evident, in the analysis, that the classing together of such cases as amputations for talipes, tumors, elephantiasis, deformity, and others of a like character, with those of diseases of the joints, a wrong result must ensue; and, practically, this was found to be the case. He therefore divides these cases into pathological amputations and amputations of expediency, choosing the latter term as more accurately expressing the reason for the operation, as limbs are removed for tumor, talipes, elephantiasis, and deformity, more from expediency than necessity; and he therefore suggests the use of such a term until a better was proposed. The author then proceeds to an analysis of the table of amputations, including 167 cases of pathological amputations, 33 amputations of expediency, 76 primary amputations, 24 secondary amputations, and having given in detail the analyses of each division, he sums up the whole in the following general conclusions:—1. That in amputations of the extremities, taken altogether, 25 per cent. are fatal; 30 per cent. in the lower extremity, and 10 per cent. in the upper. 2. That amputations, as a whole, are fatal in the following order: Secondary, 50 per cent.; primary, 13 per cent.; amputations of expediency, 30 per cent.; pathological amputations, 12.5 per cent. 3. That in pathological amputations of the thigh 15 per cent. are fatal, or 1 in 5.5; leg, 7.7 per cent. are fatal, or 1 in 13.0; foot and upper extremity, success generally follows. 4. That in amputations of expediency of the thigh, 31.5 per cent. are fatal, or 1 case in 3.16; leg, 6.6 per cent. are fatal, or 1 case in 15; upper extremity, fatal cases are exceptional. 5. That in traumatic amputations of the lower extremity 60 per cent. are fatal; of the upper, 15 per cent.; and that traumatic amputations of the leg are at least as fatal as those of the thigh. 6. That secondary amputations are more fatal than primary. 7. That in amputations of the thigh for chronic disease of the knee joint, 1 case only out of 7 proves fatal,* or about 14.5 per cent.; but for acute suppurative, a fatal termination is the rule. 8. That in amputations of the lower extremity for tumors, 36 per cent. are fatal; of the upper, recovery may generally be expected. The author then proceeds to the more immediate subject of the causes of death after amputations; and having given two tables, showing the different causes of death, and their proportions or percentages both to the fatal cases and the whole number of amputations, he goes on to the analysis of each division, and, having given a detailed account of each, he condenses the whole into the following conclusions:—

General conclusions upon the causes of death in amputations generally.—1. That 25 per cent. are fatal; 30 per cent. of the lower extremity, 10 per cent. of the upper. 2. That pyæmia is the cause of death in 42 per cent. of the fatal cases, and 1 in 10 per cent. of the whole number amputated. 3. That exhaustion is the cause of death in 33 per cent. of the fatal cases, and in 8 per cent. of the whole number amputated. 4. That the following causes of death are fatal in the annexed proportions:—

* The fatality of excision of the knee, according to Hatcher, is at least 1 case in 5.

	Of fatal cases.	Of whole number.
Secondary hemorrhage . . .	7. per cent. or 1.66 per cent.	
Thoracic complications . . .	5.6 "	1.33 "
Cerebral " . . .	3. "	.66 "
Abdominal " . . .	1.4 "	.33 "
Renal " . . .	3. "	.66 "
Hectic " . . .	3. "	.66 "
Traumatic " . . .	7. "	1.66 "

Pathological amputations.—1. That pathological are by far the most successful amputations, 12.5 per cent. proving fatal. Such amputations of the upper extremity are generally followed by success. Of the lower extremity, 15 per cent. terminate fatally. 2. That pyæmia is the chief cause of death, proving fatal in 43 per cent. of the fatal cases, and in 5.4 per cent. of all pathological amputations; and when fatal, as a rule, it causes death within fourteen days of the operation. 3. That exhaustion, either from the shock of the accident or of the operation, from hemorrhage, or all three causes combined, is the cause in 33 per cent. of the fatal cases, or 4 per cent. of all amputations. 4. That secondary hemorrhage is the fatal cause in only 9 per cent. of the fatal cases, and in 1.4 per cent. of all amputations. 5. That hectic, abdominal, and thoracic complications act equally as causes of death in 13 per cent. of the fatal cases, and in 2 per cent. of all amputations.

Amputations of expediency.—1. That 30 per cent. are fatal; but as amputations of the upper extremity are, as a rule, successful, the percentage of this operation upon the lower is much increased, 40 per cent. proving fatal. 2. That pyæmia is the chief cause of death, proving fatal in 60 per cent. of the fatal cases, and in 18 per cent. of all such amputations; and when fatal, as a rule, death takes place within fourteen days of the operation. 3. That death from exhaustion occurs in but 10 per cent. of the fatal cases; and that same thoracic or renal complication, or carcinomatous infiltration, are fatal causes in the same proportion.

Primary amputations.—1. That 43 per cent. are fatal; 60 per cent. of the lower extremity, and 30 per cent. of the upper. 2. That primary amputations are more successful than secondary. 3. That pyæmia is the cause of death in 43 per cent. of the fatal cases, and in 16 per cent. of the whole number, and, that, when fatal, the symptoms appear, as a rule, between the seventh and fourteenth days after the operation, and cause death in the third or fourth week, and not during the first two weeks, as in pathological amputations and those of expediency. 4. That exhaustion is the cause of death in 32 per cent. of the fatal cases, and in 12 per cent. of the whole number. 5. That traumatic complications prove fatal in 15 per cent. of the fatal cases, and secondary hemorrhage, cerebral or thoracic complications, about 7 per cent. each; renal disease proving a cause of death in 3.5 per cent.

Secondary amputations.—1. That 50 per cent. are fatal; 68 per cent. of the lower extremity, and 12.5 per cent. of the upper. 2. That secondary amputations are more fatal than primary, by about 8 per cent. 3. That exhaustion is the chief cause of death, proving the cause in 60 per cent. of the fatal cases. 4. That pyæmia is the cause in 25 per cent. of the fatal cases; secondary hemorrhage and hectic in the remaining 15 per cent.

Conclusions upon pyæmia as a cause of death.—1. That it is the cause of death in 42 per cent. of all fatal cases of amputations, and in 10 per cent. of all amputations. 2. That it is the cause of death in the different forms of amputation in the following order: 1. In 70 per cent. of all fatal amputations of expediency. 2. In 43 per cent. of all fatal primary amputations. 3. In 43 per cent. of all fatal pathological amputations. 4. In 25 per cent. of all fatal secondary amputations, and that in amputations of expediency it is the most frequent cause, and in secondary amputations the least. 3. That in amputations for acute suppuration of the knee-joint, whether the result of an abscess discharging into the joint or otherwise, pyæmia is a more frequent cause of death than in amputations for chronic disease. 4. That it is the general cause of death in amputations for talipes, elephantiasis, and tumors. 5. That in

primary amputations, and in amputations of expediency of the leg, it is a more frequent cause of death than in the same operations upon the thigh. 6. That, upon the whole, pyæmia appears to be a more frequent cause of death in amputations through limbs the tissues of which are in a normal condition, and where a large surface of healthy bone is exposed. 7. That in pathological amputations, and in amputations of expediency, pyæmia, as a rule, proves fatal within fourteen days: but, after traumatic amputations, the period of death is about the twenty-fifth or twenty-sixth day.

General conclusions upon amputations of the thigh.—1. That 27 per cent. are fatal. Pathological amputations, 18 per cent.; amputations of expediency, 31 per cent.; primary amputations, 60 per cent.; secondary, 75 per cent. 2. That in amputation of the thigh for chronic disease of the knee-joint, about 16 per cent. are fatal, or 1 case in 7. 3. That amputations of the thigh for acute suppuration in the joint are generally fatal; and that pyæmia is the chief cause of death in these cases. 4. That exhaustion and pyæmia are causes of death in equal proportions, or in about 40 per cent. of the fatal cases; and in 10 per cent. of all amputations of the thigh. 5. That exhaustion is most fatal in primary amputations, and the least so in amputations of expediency. 6. That pyæmia is most fatal in amputations of expediency, and the least so in primary. 7. That primary amputations are, for the most part, fatal from exhaustion, 35 per cent. of the cases sinking from this cause, 15 per cent. from pyæmia, and secondary hæmorrhage and traumatic complications 5 per cent. each. 8. That exhaustion, pyæmia, and hectic are equally fatal causes in secondary amputations, proving fatal in 25 per cent. each.

Amputations of the leg.—1. That 37 per cent. are fatal; pathological amputations, 7.7 per cent.; amputations of expediency, 66.6 per cent.; primary amputations, 62.5 per cent.; secondary amputations, 66.8 per cent. 2. That amputations of the leg are 10 per cent. more fatal than of the thigh; the amputations of expediency and traumatic amputations being more fatal, and the latter more frequent. 3. That amputations of expediency of the leg are generally fatal, being twice as fatal as those of the thigh; that pyæmia is the chief cause of death in 75 per cent. of the fatal cases, and in 50 per cent. of all such amputations. 4. That in primary amputations, pyæmia is the cause of death in half the fatal cases, or in 32 per cent. of all such operations; exhaustion and visceral complications about 8 per cent. each. 5. That comparing primary amputations of the thigh and leg together, they are equally fatal; but that pyæmia is twice as fatal in amputations of the leg as in amputations of the thigh. 6. That half the cases of secondary amputations die from exhaustion: pyæmia and secondary hæmorrhage being fatal in 8 per cent. each. 7. That taking all amputations of the leg together, 42 per cent. of the fatal cases die from pyæmia, and 32 per cent. from exhaustion.

Amputations of the upper extremity.—1. That 10 per cent. are fatal. 2. That pathological amputations and those of expediency are, as a rule, successful. 3. That about 20 per cent. of traumatic amputations are fatal; 22 per cent. of the arm, and 16 per cent. of the forearm. 4. That one-third of these fatal cases die from pyæmia; one-third from some traumatic complication; and the remaining third from secondary hæmorrhage or visceral disease.

(F) CONCERNING INSTRUMENTS, ETC.

ART. 78.—On Iron-wire Sutures. By Professor SIMPSON.

(*Medical Times and Gazette*, Jan. 1, 1859.)

"Last summer," says Dr. Simpson, in a recent clinical lecture on vesico-vaginal fistula, "I took occasion to make an extensive series of experiments upon the relative merits of metallic inorganic sutures and ligatures, and upon the relative surgical qualities of different metallic threads. These experiments were for the most part kindly performed for me by my friends Mr. Edwards, Mr. Jardine Murray, and Dr. Coghill, and the subjects of the experiments were a number of unfortunate pigs, which were always, of course, first indulged

with a good dose of chloroform. We made corresponding wounds of various kinds, usually on directly opposite sides of the body, and sewed some with threads of silk, hemp, cotton, &c., and others with threads of silver, gold, platinum, lead, iron, &c. As a general result the contrast between wounds sewed with organic threads, and wounds of corresponding size and situation upon the same animal, sewed with metallic threads, was most striking and remarkable. For while the silk and other organic sutures almost invariably began to inflame and suppurate along their tract a few days after their introduction, the metallic sutures remained, as it were, quite passive in the lips of the wounds, and without exciting any appreciable inflammatory disturbance. I have seen enough of cases in the human subject to convince me that the same comparative results as a general law follow the uses of these two forms of suture in the surgery of the human body. In fact, the surgeon is almost invariably obliged to cut out a silk or other organic thread a few days after its introduction, in consequence of the suppuration and ulceration which its detention excites. You may leave, on the other hand, a metallic suture without any such consequences for weeks or months, instead of days.

"Why do metallic threads not lead on to the higher degrees of inflammation, such as suppuration and ulceration, along their tracts and in their neighborhood, as organic threads do? I believe this question is to be solved by the mere fact of metallic bodies or threads lying unchanged and inert in and among the tissues with which they are in contact. If we introduce a metallic wire into a part, it has no power of absorbing the fluids there, and lies in apposition to the tissues without irritating them. A thread of silk absorbs the fluids thrown out—lymph or pus, or whatever else it might be—and these dead fluids remaining in the thread and becoming decomposed, render it a small tract or nidus of putrefaction and infection. In the experiments already alluded to, I repeatedly took silk threads which had been a few days in the lips of wounds in the pig, and had there produced suppuration in their tracts, and placed small portions of them in the bottom of new wounds in the same animal. Within a day or two, severe inflammation, sometimes of a carbuncular form, appeared in the lips and sides of these new wounds, showing the acrid and morbid nature of the dead and decomposing materials absorbed by and retained within these organic threads.

"What metal is best? This question has been often asked, and variously answered. Sims uses always silver wire in preference to any other. Mettauer, like Dieffenbach, operated with leaden wires. I have always used the ordinary simple and cheap blue iron-wire of the shops; and I believe it is the best. What is required is a material not readily oxidizable, and possessed of a certain degree of strength and tenacity. Now, it has been found that a certain thickness of wire, if made of lead, will sustain a weight of 1 lb.; silver, 9 lb.; platinum, 13 lb.; iron, 26 lb.; from which it will be seen that iron-wire will not so readily give way as some of the others. But is it from any particular reason more irritating than these, or more likely to produce a high and dangerous, or destructive degree of inflammation? The liability of iron to rust, or become oxidized, at once occurs to most minds as likely to impair its usefulness, and render it irritating to the tissues with which it is brought into contact. But we know that iron in some forms does not become oxidized in the body, and causes no disturbance whatever in the tissue. Needles, for instance, usually excite little or no inflammation; and I show you here a portion of a needle removed by Mr. Murray from a child's foot, in which it had lain three years and four months without becoming in any degree roughened on the surface by rust or oxidation. And Schönlein has shown that, by being submitted to certain processes, iron may be rendered what he calls 'passive'; and in this passive state it is not at all liable to become changed and oxidized. For while iron, in the ordinary condition, gives rise to a sort of effervescence on being introduced into strong nitric acid, of specific gravity 1.3, this phenomenon is not seen when the iron is in the 'passive' state. This condition may be induced in various ways—by passing a piece of wire through the flame of a spirit lamp, by introducing the wire into nitric acid at the same moment, and in contact with a piece which is already passive, or, as in the wire which

I commonly use, by annealing, which is done, I am told, by putting the hot wire into an oil bath. The wire, then, which I always use, and which I believe to be the best, as it certainly is the cheapest, is the ordinary annealed iron-wire of the shops, and of the size known as No. 32. I have by me here some specimens of iron-wire coated with tin, silver, &c., as well as wires of platinum and other metals; but not one of them fulfils any indication better than the simple annealed blue iron-wire, which may be bought at any wire-worker's for a shilling a pound. Through the kindness of my esteemed friend, Dr. Aveling, of Southwell, the firm of Coekers, Brothers, of that town, have lately manufactured an iron-wire for surgical purposes, drawn out of the finest procurable material, and in this respect superior to the common iron thread I have always used."

ART. 79.—*A New Fissure-needle.*

By Mr. FERGUSSON, Surgeon to King's College Hospital.

(*Medical Times and Gazette*, Nov. 20, 1863.)

The annexed woodcut will explain better than any verbal description from Mr. Fergusson, who endeavored to supply the want long felt by operating surgeons of a convenient needle for passing a ligature easily and rapidly through the opposed surfaces of a fissure, more particularly in the operations for the cure of cleft palate and vaginal fistula.

The instrument consists of a handle and staff, both in the same straight line, a needle, curved ellipsoidally, being fixed by a hinge-joint at the extremity of the staff. This needle is forced to move in the radius represented in our engraving by a dotted line, when pressure is made upon the projecting handle of a compound lever, which is attached at its furthest extremity to the needle as resaid. When the edges of the fissure have been brought together in the usual manner, the surgeon is able to pass his silk or wire ligature through both sides of the opposed edges by a single movement: i. e. he thrusts the needle (carrying the silk upwards) so as to perforate one of the edges of the wound, and then carries it through the other side by simply pressing on the handle of the lever. Having seized the silk or wire with forceps, a removal of the pressure exerted by the thumb on the lever allows the needle to resume its former position, leaving the silk in the desired situation, and the instrument may then be withdrawn, re-threaded, and the same routine observed till the requisite number of stitches have been passed. At the suggestion of Mr. Spencer Wells, who used this needle in a case of vesico-vaginal fistula, Mr. Fergusson now makes the needle with an opening eye, so that the silk or wire may be freed as soon as passed, and the needle more easily withdrawn.



ART. 80.—*Are not the Escharotic preparations of Steel the best Escharotics in certain cases?* By Professor SIMPSON.

(*Medical Times and Gazette*, Feb. 6, 1859.)

"We have," says Professor Simpson, "at least one very interesting case recorded to show that the simple muriate of iron may prove to be a most useful agent in the destruction of carcinomatous growths. I allude to a case occurring in the practice of my friend, Dr. Boulton, of Newcastle, who had a patient with epithelial cancer of the cervix uteri, which had attained a considerable size, which frequently was the source of profuse hemorrhage, and which was

quite friable, and broke down under examination with the finger. He applied some tincture of the muriate of iron to the broken-down tissues, and this seemed to act by coagulating the blood in the small bloodvessels of the part, and so destroying its nutrition that it mortified and sloughed away. Perhaps a saturated solution of the perchloride would act still more effectually. The disease returned, and was again treated in the same way, and with the same result; and after it had in this way several times recurred and been destroyed, it was finally cured, and the patient has now remained well for several years. The observation is an extremely interesting one, for it may be that, while arsenic would destroy the cancerous parts, and then pass deeper and exert its poisonous action on the whole body, iron, or some other metal, may have merely the more local effect of poisoning the morbidly disposed cells in and near the diseased part. And in reference to this matter, you must remember that iron, in its various forms, is also one of the best of all tonics that you can prescribe for a cancer-affected patient. There is evidently in such cases a diminution of the quantity of iron in the blood, as is shown also by chemical analysis; they are usually chlorotic; and so convinced was Mr. Carmichael, of Dublin, of the beneficial effects of iron in the treatment of cancer, that he proposed to keep patients saturated with it as the best means of checking the progress of the disease. It certainly is one of the best tonics we possess for such cases; and a few instances like that narrated by Dr. Boulton would show it also to be a very admirable escharotic, and might lead to its more general application for the local destruction of the carcinomatous growth."

ART. 81.—*On the Sulphate of Zinc and Sulphuric Acid as an Escharotic.* By Professor SIMPSON.

(*Medical Times and Gazette*, Feb. 5, 1859.)

In a clinical lecture on carcinoma of the uterus and mamma and its treatment by caustics, we find the following very important remarks:—

"If you make use of the caustic made by saturating strong sulphuric acid with a quantity of sulphate of zinc, dried and powdered, you can manage by dipping an ordinary quill pen in this mixture, as if you were going to write with it, to lay it in a number of lines across the tumor, the number of lines corresponding to the size of the growth which you wish to destroy. Very speedily the super-sulphate of zinc kills the skin in the course of the lines which you have drawn; and if you will now scratch assiduously with the filled pen along these lines, you will cut through the skin in a few seconds. Leave for a day the fissures filled with the caustic paste, and then every day or two by renewing the application of the scratching and caustic you can cut down to a greater depth. In making the first application I usually make a fissure of about a fourth or three-eighths of an inch in depth, and then destroy the tumor more deeply by successive applications. In this way five or six days may suffice for the removal of a good-sized tumor. Let me add, that in thus destroying and digging out, as it were, from its very base, a cancerous tumor of the mamma, or other external part—neither of the two caustics applied by the quill would suffice singly and individually. If you use the sulphuric acid alone you will find that the acid so chars and hardens the spot to which it is applied that you cannot next day cut or scratch deeper through it with the pen; while the super-sulphate of zinc paste keeps the parts soft and pliable. Again, if you used sulphate of zinc alone you could not cut through the skin or penetrate deeply with it. For that purpose the aid of the sulphuric acid is required, and the relatively slighter pain attendant upon this than upon most other caustics is perhaps explicable by the fact that sulphuric acid acts almost instantaneously in producing its destructive effects upon living tissues. Usually the healthy skin at the edge of the sloughing-out mass is granulating, contracting, and partially cicatrizing before the dead tumor itself separates. Dress the exposed tissues or ulcer before and after the tumor is enucleated with black wash, chloride of zinc, sulphate of zinc, nitrate of silver, or any other appropriate surgical lotion."

II.—SPECIAL QUESTIONS IN SURGERY.

(A) CONCERNING THE HEAD AND NECK.

ART. 82.—*Cases of Granular Ophthalmia treated by the application of gonorrhoeal matter to the eye.* By Mr. HUMPHRY, Surgeon to Addenbrooke's Hospital, Cambridge.

(*Brit. Med. Journal*, Jan. 5, 1869.)

Granular ophthalmia is without doubt one of the *opprobria* of surgery, and daily experience proves sufficiently that it is little influenced by ordinary means of treatment. Mr. Humphry was prepared therefore to give a favorable consideration even to the suggestion of the somewhat revolting and hazardous experiment of applying gonorrhoeal matter to the eye, which had been already carried out by Mr. Bowman at the Moorfields Eye Infirmary. The principle obviously is that of curing a chronic inflammation and its results by exciting a more severe inflammation in the structure; and, as no other agent that he could think of was likely to produce an impression sufficiently severe and prolonged to work the desired effect, Mr. Humphry determined to introduce the gonorrhoeal matter into one eye of each patient. It is worthy of remark, that acute inflammation of both eyes quickly followed. The result has been most satisfactory, inasmuch as good sight has been restored in one, and very fair sight in the other of two persons, who were nearly blind, and apparently condemned to remain so. It need scarcely be observed, that such a mode of treatment should be reserved for the very worst cases, those in which the cornea has become so opaque that useful vision is lost, and in which a fair trial has been given to milder means.

CASE 1.—Wm. Ford, æt. 49, a thin pale man, had been the subject of ophthalmia for more than three years. The disease was, he believes, caused by particles of sand getting into his eyes when following the occupation of digging for coprolites: it was at first neglected, then treated with stimulating applications, and gradually assumed a very aggravated form. The conjunctiva of the lids and of the hinder part of the globe in each eye was in a highly granulated and vascular state; the surface of the right cornea was so opaque that he could scarcely distinguish light from darkness; and in the left cornea there was not sufficient transparency to enable him to guide himself; the lids extremely retracted. He had undergone a great variety of treatment, in and out of hospital, both in Cambridge and London, without deriving the least benefit; and there was much reason to fear that he would be blind for the remainder of his life.

July 17th, 1868.—Some fresh gonorrhoeal matter was taken from the penis of a man, and applied to the conjunctiva of the *right* eye. This was followed by very severe purulent ophthalmia of *both* eyes, the conjunctiva swelling, and the surfaces of both cornea becoming quite vascular. Fomentations and frequent washings with warm water were used. Gradually the inflammation diminished; the conjunctival swelling subsided; the purulent discharge ceased; and the corneal structure again came into view, and became more and more clear. The left cornea is now nearly transparent, and the right is more so than it has been since the first commencement of his malady. He can read large print, and is able to commence working upon the roads. The granulations upon the conjunctiva are very much less large and numerous, and it is hoped the improvement will continue.

CASE 2.—Catherine Coxfield, æt. 14, a healthy girl, had suffered under ophthalmia for four years. The disease, at first neglected, and then treated with nitrate of silver, had become intractable, and resisted the ordinary remedies, employed with great care by the different surgeons of the hospital under whom she had been, at intervals, as in- and out-patient, for more than two years. The conjunctiva of the lids and back of the globe was very granular, and the cornea were so opaque and vascular that she could scarcely see to guide herself, so that she was quite unfit for any work. Her condition was a source of great

anxiety, the result of past treatment leading to the apprehension that no remedy would be found.

July 17th, 1858. — Some pus was taken from the eye of the gonorrhoeal patient above-mentioned, which had recently been destroyed by ophthalmia, and applied to the conjunctiva of the girl's *right* eye. Purulent ophthalmia ensued in *both* eyes, very severe, but not quite so severe as in the case of Ford. It gradually subsided; and the cornea became clearer, so that by the end of August she could guide herself very well. The improvement has continued; and she has for some time been able to read small print, thread her needle, do needle and other household work, and, indeed, see very well. The cornea have nearly their natural transparency; and the conjunctiva has an almost healthy condition.

ART. 83.—*On the treatment of obstinate Granular Ophthalmia by the local application of a solution of Chromic Acid.* By Dr. HAIRTON.

(*Archiv. Belge de Mtd. Militaire*, Sept. 1858; and *Gaz. Hebdom. de Mtd. et Chir.*, Jan. 7, 1859.)

The solution employed by Dr. Hairton consists of equal parts of chromic acid and distilled water. This is supplied by means of a camel-hair pencil, and the application, he tells us, is neither very painful, nor followed by any great amount of reaction. Fourteen cases were treated in this manner, and in eleven of these the result was satisfactory. The cauterizations were made at intervals of four, six, or eight days; they varied in number from two to fourteen; and the time occupied in the cure extended from four weeks to four months. As might be expected, considerable prudence is required in the adoption of this mode of treatment, and it is only in *very obstinate* cases that it is recommended.

ART. 84.—*On a new method for the rapid destruction of Conjunctival Granulations.* By Dr. BORELLI.

(*Presse Mtd. Belge*; and *Dublin Medical Press*, March 30, 1859.)

After some preliminary remarks, M. Borelli goes on to the description of a new instrument proposed by him for the destruction of the granular tissue. It consists of a trush of iron with very sharp points, straight and long, like the teeth of the comb used for carding wool. These points, applied with force to the granulations, penetrate them in their whole depth, and detach them from their base as the instrument runs over them.

We leave the author to explain his method of operation.

The patient being seated in a chair facing the light, or, if lying, with his head well supported by pillows, the upper lid is everted in the ordinary manner, taking care to turn out the two angles as much as possible, as they are the principal seat of the granulations. The lower lid is then drawn down by an assistant, so as to evert the conjunctiva. Then the operator, with his right hand, applies the points of the instrument to the granulations, employing the greatest number possible, and passing them three or four times over the affected parts with the requisite pressure. The pain is not excessive, and ceases almost immediately, in which it differs from that induced by cauterization. The abstraction of a considerable quantity of blood which follows on these deep incisions produces immediate relief by getting rid of the congestion which always accompanies granulations. When the operation is over, and the lids turned down, cold-water dressing is applied to the eyes, and the whole is finished.

This is the operation which is requisite in cases where the granulations are numerous and occupy nearly the whole mucous surface of both lids. But where the disease is confined to one lid, or only to the angles, the operation must be limited to these regions, and must be effected with the angular extremity of the instrument, which acts with the same certainty.

All the palpebral granulations cannot, however, be removed by this operation; a few will often remain hidden deeply in the fold of the upper lid, and

which cannot be discovered by the eversion of the lid, and so escape from the point of the instrument. To destroy these, it will be necessary to use a "brush," the free extremity of which is straight and quadrangular; it must first be passed between the globe of the eye and the lid, against the fold of mucous membrane, towards which the points of course must be directed, and then drawn down rapidly from one angle to the other.

The destruction of the granulations may be repeated every second, third, or fourth day, according to the results obtained. M. Borelli has established the fact, that, subsequent to the destruction of the granulations from the base by the application of the instrument, cauterization with sulphate of copper may prove useful for the complete eradication of the granular germ, and to prevent the reproduction of their primary anatomical elements.

The organic changes he has observed on the mucous surface of the lids subjected by an amount of laceration sufficient for the final cure of the granulations are, first, the deposition of grayish or yellowish coagulable lymph, which constitutes the first traces of a plastic reconstruction, then the formation of that lymph into a more compact, homogeneous, and shining tissue, which becomes vascularized, and acquires little by little the nature of mixed cicatrix. This favorable result is due to the fact, that the fundamental mucous tissue has not been entirely destroyed by the operation for the removal of the granulations.

We may remark that in the paper about to be published in the next number of the 'Journal d'Ophthalmologie de Turin,' our learned brother Borelli, in order to show the importance and utility of his treatment, has founded his arguments on the principles set forth by Professor Thury as to the nature, causes, and alterations which characterize true granulations, which are specific, and only give place to a contagious and virulent product. The means extolled by M. Borelli only apply to true granulations, and not to those common elevations produced often by a simple, congestive, inflammatory development of certain normal elements of the conjunctiva, such as the papillae and follicles, and which some authors have so arbitrarily transformed into the fleshy vesicular granulations proper to Belgian military ophthalmia. These pretended granulations, as all the world now knows, only require a sufficiently energetic treatment; they disappear of themselves, or are cured by the simplest agents, whilst formerly they were looked on as dreadful bugbears, requiring to be at once extirpated.

ART. 85.—*Sulphur-ointment as a remedy in Granular Conjunctiva.* By Mr. WHARTON JONES, Ophthalmic Surgeon to University College Hospital, London.

(*Medical Times and Gazette*, Jan. 15, 1899.)

Mr. Wharton Jones tells us that he has used sulphur-ointment as a remedy in granular conjunctiva with very encouraging results. After sacrificing the inflamed surface, he applies the ointment in the following manner:—

A piece, the size of a split pea, is to be taken up on the point of a probe, or on the point of the nail of the little finger of the right hand, and insinuated under the upper eyelid, while this is drawn forward from contact with the eyeball. When the salve is fairly on the eye, the upper eyelid is to be gently drawn down and rubbed over the eyeball with the finger for a minute or so, in order to diffuse the salve, now melted by the heat of the eye, between the eyelids and eyeball, and consequently all over the conjunctiva.

The sulphur-ointment causes rather more pain than the red precipitate ointment.

"Marked as the good effects of the sulphur-ointment have been found to be so far, it remains," he says, "for experience to show whether we shall be inclined to it for anything like a complete and permanent cure of that miserable complaint of the eyes—granular conjunctiva.

"Relying on the peculiarly inveterate character of granular conjunctiva, the idea occurred to me that the disease might possibly depend on, or at least be kept up by the existence of some parasitical organism, and that accordingly

sulphur might prove a remedy. I was thus led to try the Unguentum Sulphuris (the most convenient form of the remedy for the purpose), instead of the red precipitate ointment which I had previously been in the habit of using.

"Whether this conjecture shall turn out well founded or not, is a matter of comparatively small consequence, so long as the remedy which is suggested is useful."

Art. 86.—Formation of an Artificial Pupil by Tying the Iris.
By Mr. CRITCHETT.

(*Ophthalmic Hospital Reports*, Oct. 1858.)

The object of this operation (which Mr. Critchett terms *iridensis*, from *iris*, and *dens*, a binding) is to prevent the receding of the portion of the iris drawn through the cornea in the operation for artificial pupil. This operation is performed in the following manner: The patient, if at all restless, being placed under the influence of chloroform, the wire speculum is inserted, and, with a pair of forceps, a small fold of the conjunctiva close to the cornea, is held so as to fix the eye. An opening is then made with a broad needle through the margin of the cornea, close to the sclerotic, and just of sufficient size to admit the canula forceps; with it a small portion of the iris is seized, but not close to its ciliary attachment, is seized and drawn out to the extent considered necessary to enlarge the pupil; a piece of fine black silk, previously tied in a small loop round the canula forceps, is slipped down and carefully tightened around the portion of iris made to prolapse, so as to include and strangulate it. This manoeuvre requires a little practice and dexterity, and is best accomplished by holding each end of the silk with a pair of small forceps with broad extremities, bringing them exactly to the place where the knot is to be tied, and then drawing it moderately tight. A single tie is sufficient; the ends are then cut off, and the operation is complete. Little or no irritation usually follows. The small portion of iris included in the ligature speedily shrinks, leaving the little loop of silk, which may be removed from the eye about the second day. This operation has been performed many times by Mr. Critchett, and by his colleagues, Mr. Bowman and Mr. Poland, and the result has been in every respect most satisfactory; the size, form, and direction of the pupil can be regulated to a nicety; its mobility is preserved, and the eye speedily recovers from the effects of the operation. It is applicable to numerous groups of cases, including all those in which the natural pupil, or even a part of the natural pupil, is movable, and has a free edge.

Art. 87.—On Ophthalmastasis, with an account of an improved method of extracting Cataract. By Mr. JOHN F. FRANCE, Ophthalmic Surgeon to Guy's Hospital.

(*Guy's Hospital Reports*, 1858.)

"For many years," says Mr. France, "I have been accustomed to steady the eye during extraction by the contact and pressure of the fingers alone, according to the practice of most modern operators; the fore finger holding the upper lid, and restraining the globe's movement upwards, the middle finger on the ear-rim curbing its movement inwards. In many cases this arrangement is sufficient for the purpose, and the section is made not only satisfactorily but with ease. In how great a degree, however, that ease is dependent on the patient's strength of nerve and steadiness of eye; and how limited the surgeon's real command of the globe is apt to prove, when the opposite qualities are manifested (especially if the anatomical confirmation of the parts happens at the same time to be unfavorable), every operator of wide experience and equal caudor must confess. Can no unobjectionable means, then, be devised which shall render his command absolute?"

"In operating for the formation of artificial pupil, I first became aware of the practicality of holding the eye perfectly still and motionless, or as nearly so as possible, by the mere application of artery forceps. The idea at length was suggested of extending the use of this instrument to another operation, in which, as far as I know, it had never been employed (at least in this country;

before; of availing myself, in short, of the same resource as in cases of artificial pupil (and with a similar object) in cases of extraction.

"I have since brought the idea to the test of experience, with the result which it is my present object to make known—the result, that is, of facilitating to a degree I could not have anticipated, the most critical stage of this operation. The mode in which I proceed is as follows: As soon as the patient is laid on the operating table, and all the preparations are complete, standing at his head, I apply the extremity of the forceps with rather firm pressure a little beneath the inferior margin of the cornea, and clasp a somewhat broad portion of conjunctiva and of the submucous fascia securely. Then, taking the instrument between the finger and thumb of the other hand, as near as practicable to its closed points, I deliver it to the assistant; whose hand, supported upon the patient's cheek, receives it, and holds it as he would a pen. It is well that the assistant should be practised in his share of duty on the dead subject. The ordinary artery forceps are, on the whole, preferable to those with a spring catch, commonly known as *Liston's*; but it is of consequence that the nibs should be broad, and the teeth sufficiently prominent. The lower lid requires no further depression than that necessarily produced by the attachment of the instrument to the ball in this way. I then raise the upper lid with the forefinger, direct the assistant to draw the cornea into a central position and retain it there with the forceps, place my fore and middle fingers on the globe in the usual way, and thus perfect the command of the organ. On now making the section, the eye is found steady and motionless; the knife can be deliberately entered, deliberately carried across the chamber, and deliberately brought out on the inner side of the cornea; and counter-puncturation being fully effected, and the flap on the verge of completion, the object of the forceps is accomplished, and they are at once disengaged. The remainder of the operation is finished in the ordinary manner.

"I have had much experience in the operation of extraction, having performed it myself considerably upwards of a hundred times; and of course am familiar with its pleasures (so to speak), and its difficulties, its contingent casualties, and the sequelæ of embarrassment attending them. After one or two trials, therefore, I was in a position to estimate the amount of advantage gained by the necessary manipulation just described; and this has proved indisputably so great, that I have employed the forceps, without exception, ever since. It will, perhaps, be the best way to place before the reader the facts which the current season has enabled me to gather, as practical criteria of the soundness of my conclusions."

Mr. France then gives twenty cases in which he has operated during the present season. In all of these the forceps appears to have been in an eminent degree advantageous.

"They facilitated the operation in difficult cases, in exact proportion to their previous difficulty and risk. This was strikingly evinced in Cases 11 and 16; both of which patients had, at a former period, occasioned the utmost anxiety, from the impediments their restless eyes presented to the satisfactory performance of the operation. They, indeed, recovered their sight well, but it was in spite of dangerous obstacles. This year they each recovered the sight of the second eye, under circumstances strongly contrasted; that which was so embarrassing before was now effectually surmounted at the very outset, by the simple means we are considering. Still more remarkable in some respects is Case 17, that of the sailor, who, on the two previous occasions had proved so utterly uncontrollable, that I was compelled to desist from the attempt to operate. On the present occasion, with the aid of forceps, after a little preliminary trouble, the globe was brought into and held in a sufficiently favorable position for a good section to be made. Could more convincing evidence be afforded of the value of this appliance?"

"The assistance rendered by the forceps is further illustrated by the fact, that in not a single case did premature escape of the aqueous humor (with its attendant inconvenience of the iris folding over the knife, and forbidding the immediate completion of the section on pain of wounding that membrane), occur. In three cases only did the first incision prove from any cause inade-

quate, and resort to the bistoury become expedient: and it was in one of these alone (in manipulating the bistoury after the forceps were detached,) that the iris was sensibly touched.

"I am well convinced that the advantages of the mode of operating now recommended will be fully appreciated upon trial; it may, therefore, be better for me to bestow a word or two in anticipation of any objection which might perhaps deter some one from the experiment. Really, the single objection which occurs to me as sufficiently plausible to merit notice (if the directions above given be followed, and especially that of disengaging the forceps as soon as counter-puncturation is complete, and before cutting out is, that the conjunctiva might possibly suffer injury from the forceps sufficient to awaken troublesome inflammation, and compromise the result. A conclusive answer is afforded by experience: no mischief has, in any case, under my observation, ensued; and this fact is substantiated, not by the foregoing cases alone, but also by numberless cases of artificial pupil, in which forceps are now habitually used, as well as by many others of soft cataract (to which I have latterly extended their use), and which are all equally available for the determination of this point.

"It is right that I should acknowledge myself indebted to the work of Desmarres, already referred to, for the *idea* of adapting artery forceps as an 'ophthalmostat' in extraction, but not for their *advocacy*."

ART. 88.—*Reclination of Cataract with two needles.*

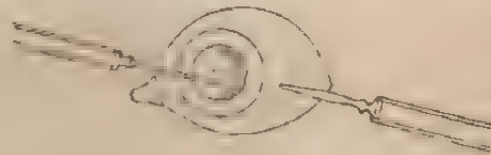
By Mr. J. V. SOLOMON.

(*Ophthalmic Hospital Reports*, Oct. 1858.)

In this article Mr. Solomon describes a method of employing two needles in "reclination" of cataract. He observes that the permanent results of this operation are most favorable where the eyeball is normally of large size, and the cataract consists of a hard nucleus enveloped in soft lens matter. This kind of cataract presents a broad edge and a deep antero-posterior diameter. Being in close contact with the ciliary body, and with the iris, to which its capsule is not unfrequently adherent, it obliterates the posterior, and sometimes encroaches on the anterior chamber. Hence the passage of a needle (entered through the sclerotic) over the rim of the lens to the centre of the pupil is difficult, inasmuch as the instrument is very apt to split the lens or the ciliary body, or to be caught under the capsule of the lens or in the tissue of the iris.

Having dissected the eyes of a patient on whom reclination had been performed, Mr. Solomon was induced to examine whether the occurrence of the accidents above mentioned might not be obviated; and he was led to the conclusion that the desired object would be attained by pressing back the outer and lower side of the lens from the iris, with a fine needle passed through the nasal side of the cornea, thus making a free space for the sclerotic needle to pass to the front of the cataract.

Other advantages which appeared likely to arise from the use of two needles, were an increased facility in the removal of the soft portion of the cataract previously to the depression of the more solid portion; protection of the iris



from contusion; and an effectual obstacle during the operation to the dislocation of the cataract into the anterior chamber. Mr. Solomon states that all his expectations were fulfilled when he operated with two needles; and more-

so that the lens was more easily and methodically reclined, and was capable of being placed with greater exactness in the outer and lower fourth of the vitreous humor than in cases where only one needle was used.

ART. 89.—*Simultaneous development of Senile Cataract in Twins.*
By Mr. DIXON, Surgeon to the Royal Ophthalmic Hospital.

(*Medical Times and Gazette*, Nov. 13, 1858.)

An interesting example of extreme closeness in resemblance to each other in twins was presented by two men recently under Mr. Dixon's care, in the Ophthalmic Hospital. The twin brothers came up together from a village in Bedfordshire, to be treated for cataract. The age of each was 54, and both were in good health. Their similarity in physiognomy was so close, that when asked it would have been impossible to recognize the difference. Both were partially bald, and both had black hair, in which a few white ones were sprinkled. The degree of baldness, the amount of whisker, &c., in the one had their counterparts almost to a hair in the other. Both had lost a good many teeth, and although their mouths did not exactly coincide as to those which remained, they did so with one or two exceptions. The lower incisors were peculiarly crowded and irregularly placed in both. When seen together, one was observed to be about half an inch taller than the other, and this was the only point by which it was possible to distinguish them. Both had cataract, and in each it was advanced to the same stage, and was the more complete in the left eye. In one the disease had been advancing for two years and a half, and in the other for one year and a half. Mr. Dixon operated by extraction on the left eye of each brother on the same morning. The cataract of the one as closely resembled that of the other as could well be imagined, and in each the exterior of the lens was rather soft, and was squeezed off in the evulsion. The parallelism was maintained in the after progress, and when the men left the hospital, it would have been difficult to say which eye was the more perfect. In both the pupil was round and mobile, and the corneal section well healed; there was, however, in one a film of soft matter remaining, which failed its counterpart in the other. The right lens in both brothers is slightly opaque, and to about an equal degree. Both have followed the trade of butcher, both are married, and neither has had more than one child. They have sisters who are also twins, but the family resemblance is said not to be nearly so closely marked in the latter.

ART. 90.—*On Dacryops or Lachrymal Cysts.* By Mr. HULEZ.

(*Ophthalmic Hospital Reports*, No. 6, Jan. 1859.)

Cysts in the upper eyelid, in connection with the excretory ducts of the lachrymal gland, and occasionally complicated by fistulous openings upon the cutaneous surface of the lid towards its temporal angle, were first accurately described by Dr. J. A. Schmidt, in a treatise on the diseases of the lachrymal gland, published in Vienna, 1803, in which two cases, that had fallen under his own notice, are mentioned. Beer, in the second volume of his '*Lehrbuch von den Augenkrankheiten*,' 1817, says that he had seen six cases of this kind. He describes lachrymal cysts under the name of Dacryops, which Schmidt had applied to them; and he also gives a short account of true lachrymal fistula, but he appears to have imperfectly understood its morbid anatomy. Since his time the affection has been mentioned in most of the larger systematic works on the diseases of the eye and its appendages; but very few authors seem to have written from a personal acquaintance with the subject, a fact which proves its extreme rarity.

Dacryops commences as a small cystic tumor, first noticed in the upper and outer part of the upper eyelid. The skin glides freely over it, but the tumor extends backwards beneath the border of the orbit towards the lachrymal gland. If the lid be drawn up on to the brow, and pressure be simultaneously applied in a downward and inward direction, a tense, elastic, fluctuating swelling instantly starts out between the eyeball and the inner surface of the

eyelid. So long as the cyst is small the natural movements of the eyeball are unrestricted; but when it has attained a large size, and especially if it has reached backwards beneath the margin of the orbit, it hinders the movements of the globe, and may even cause its protrusion. The most characteristic and striking sign of dacryops is the sudden enlargement which the tumor undergoes when the patient cries. An attempt to extirpate such a tumor with the knife will generally fail, because the cyst is so delicate that it is hardly possible to dissect it away entirely, and if the wound should heal a tumor soon forms again. More frequently the wound does not perfectly heal, but a very minute fistulous aperture remains permanently open in the skin of the eyelid, from which the limpid secretion of the lachrymal gland continually oozes drop by drop. In this case the cyst causes little or no swelling in the lid, because the tears escape freely and do not distend it.

Lachrymal cysts are most commonly a consequence of mismanaged abscess, or of neglected wounds, attended by prolonged suppuration in the upper eyelid. The first step in their formation is the obstruction of one or more of the excretory ducts of the lachrymal gland, either at the external orifices in the upper sacculus of the conjunctiva, or at some other point nearer the gland. The escape of the tears being prevented, they accumulate and distend that portion of the duct above the obstructed point, in connection with the lachrymal gland. But these cysts have not invariably a traumatic origin; they are sometimes congenital. Schmidt took this view of two cases which came under his notice. He imagined that, by a congenital malformation, some of the excretory ducts terminated in the cellular tissue of the upper eyelid; that the secretion of the lachrymal gland was poured into the interstices and formed a kind of cyst by distending one or more such space, which, as it enlarged, acquired a capsule by the condensation of the surrounding cellular tissue. Thus the formation of lachrymal cysts has been explained in two ways: one is by the uniform distension and dilatation of an excretory duct; the other by the distension and expansion of the interstices of the cellular tissue. But whatever their origin may be, it has no practical bearing on the treatment; and it is very important to bear in mind that, if these cysts be opened through the skin, a permanent fistula will probably result, and this may become the most prominent symptom, especially if the escape of the tears allows the cyst to collapse.

The successful treatment of dacryops, with or without fistula, depends on the artificial formation of a permanent opening for the escape of the tears on the inner surface of the upper eyelid; and when this has been accomplished the closure of the fistulous orifice on the skin can be attained without difficulty.

CASE I.—Caroline Bowley, æt. 27, a glove-maker, applied to Mr. Bowman, at the Moorfields Hospital, May 25th, 1856, on account of a troublesome trickling of tears from a small hole in the skin of the upper lid of the left eye. Her mother had previously brought her to the hospital, when she was a child nine years old, with a swelling in the upper eyelid, which was, at first, said to be a tumor; but it afterwards suppurated, was lanced, and a hard body, resembling a plum-stone in form and size, was removed from it. The wound did not completely heal, and from that time tears have always oozed from a minute aperture in the skin of the lid; they ceased to flow for a short time eight years before she came under Mr. Bowman's care. This cessation was followed by an abscess in the upper eyelid, and both the eyelids became so greatly swollen as completely to hide the eye itself. When the abscess broke, all the swelling of the lids subsided, but the fistula reappeared, and tears trickled from it as before. When she came to the hospital in 1856, I made the following memorandum of her condition at that time:—

"In the skin of the upper eyelid of the left eye, near the outer end of the lid, and at about one eighth of an inch from its free border, there is a small orifice in the skin, from which a colorless limpid fluid continually oozes drop by drop and trickles down her cheek. It has a faint alkaline reaction, perfectly resembles tears, and does not excoriate the parts over which it flows. The aperture just allows the introduction of a fine probe, which can be passed for about half an inch upwards towards the lachrymal gland, and a careful examination shows that the fistula communicates with a cyst which

occupies the outer half of the upper eyelid, but being collapsed does not cause any swelling. The cornea has its natural brightness; there is not any redness of the conjunctiva, nor does she complain of any sensation of dryness in the eye."

The connection of this cyst with the excretory ducts of the lachrymal gland could not be doubted, and it immediately became apparent that some provision must be made for the escape of the tears on the inner surface of the lid before the closure of the orifice in the skin could be undertaken with success. This was accomplished with a seton, in the following manner:—

A single thread of silk was armed with a needle at each end, and one of the needles was introduced into the fistulous orifice in the skin on the outer surface of the eyelid, and carried for a short distance upwards; it was then made to pierce the fibro-cartilage of the lid and conjunctiva, and the thread was drawn out at the inner surface of the lid. A similar manoeuvre was repeated with the other needle, and the thread was drawn out at the inner surface of the lid at the distance of a quarter of an inch from the first, and a little nearer the attached border of the lid. In this way the cyst was pierced at two points by the thread, which encircled in a loop the small intervening portion of tissue. The two ends of the thread were then brought out at the outer commissure and secured upon the temple with a piece of sticking plaster.

The presence of the thread occasioned very slight annoyance; the conjunctiva, lining the upper eyelid, became a little swollen and injected; and tears continued to flow from the orifice in the skin, but less abundantly. Ten days afterwards the thread was replaced by a thicker one, which produced more irritation, and the conjunctiva immediately around it became slightly granular. An attempt was now made to close the aperture in the skin. It was drawn out with a forcep and cut off with scissors, together with the little piece of skin immediately around it. The fibres of the orbicularis palpebrarum were then seen covering the outer surface of the cyst, which was extremely thin. The edges of the wound were brought together with two *serres fines*, which were replaced in the evening of the same day by slips of plaster.

When she was next seen, after an interval of four days, the wound had quite healed, and the fistula in the cutaneous surface of the lid had perfectly closed. No tears had accumulated in the cyst, but one week after the operation a small quantity of mucus had collected in it; this could be easily squeezed out by the side of the thread through the opening on the inner surface of the lid. The thread was now withdrawn, and the small bridge of tissue which had been encircled by the loop cut out. This opening in the conjunctiva continued patent, and there was no further collection of mucus, nor of tears in the cyst.

Mr. Hulke also relates five other cases of dacryops—two from Schmidt, one from Beer, and two from Jarjavay.

Art. 91.—On two new Methods of Treating Diseases of the Lachrymal Sac.

By Dr. v. GRAEFE.

Allg. Central Med. Zeitung, No. 67; and *N. American Medico-Chir. Rev.*, March, 1859.

In one of the sessions of the Society of Physicians of Berlin (July), Dr. v. Gräfe reported on two methods of treating affections of the lachrymal sac, which he considers a decided progress in ophthalmic surgery. One of them was proposed by Bowman, and has for its object the restoration of the permeability of the lachrymal passages by methodic dilatation. It differs from all the known methods of dilatation in the point that the lachrymal sac is not laid open through the skin, but that the instruments are introduced from the mucous membrane through the inferior punctum lachrymale, which has been previously dilated by slitting it. Although an experience of only four months does not permit any positive statement on the permanency of cures thus obtained, Dr. v. Gräfe does not hesitate, even at this early moment, to pronounce Bowman's method the best of all used for the restoration of the lachrymal passages.

The second innovation was proposed by Dr. Tarniot, and has the opposite

indication in view, viz., to destroy the lachrymal passages. Believing that the entrance of tears rendered the obliteration of the lachrymal sac difficult, Tavisnot recommends to cut off the puncta lachrymalia, in order to prevent tears passing into the sac. The idea itself is correct, but the obliteration of the lachrymal canals is not effected with certainty by the process recommended. Von Graefe uses other means, for instance, ligation with a suture, gradually cutting through, or cauterization by means of small *portes caustiques*, which are introduced into the lachrymal canals. Dr. Leibreich, who assisted in Graefe's clinic, conceived the idea of coating Anel's probes with nitrate of silver; in order to make the caustic adhere, the probes were first rendered rough by exposing them to the action of nitric acid; thus prepared, they were dipped into fused nitrate of silver. Any silver instrument can be converted by this process into a caustic body. After permeability of the lachrymal canals is obtained, the obliteration of the lachrymal sac is easily effected by gentle caustics. The hot iron, chloride of zinc, Vienna paste, &c., which often produce circumscribed caries, can be dispensed with.

By these two innovations, the old contest between destructive and conservative surgery, in the treatment of diseases of the lachrymal sac, has been revived. According to Dr. v. Graefe's opinion, the following rules are to be observed in regard to the indications: 1. In every case in which circumstances offer the prospect that perviousness may be permanently restored, the surgeon should endeavor to obtain it by Bowman's method. 2. In cases where the restoration of permeability is problematic, and could only be obtained by a tedious cure, it must be ascertained whether the lachrymal glands of the patient, after removal of all causes stimulating them to excessive secretion, furnish a great or relatively small quantity of tears. Dr. v. Graefe gives the necessary rules for making this estimate. In cases in which the quantity of the secretion is small, obliteration, after cauterizing the lachrymal canals, is preferable to restoration of the continuity. No stillicidium lachrymarum remains in this case. If, however, the quantity of the secretion is large, Bowman's method should be first tried, for fear that the stillicidium might remain; only if it is impossible to obtain a permanent cure by this means, the lachrymal sac should be obliterated. Dr. v. Graefe communicates the following statistical results in reference to this operation: Of one hundred patients in whom the lachrymal sac has been successfully destroyed, twenty suffer from permanent and troublesome overflowing of tears; seventy are molested neither at their work, nor in the room, but experience increased moistening in open air, or if exposed to tears, &c.; ten, finally, do not notice any difference from the normal eye. 3. In cases of caries, organic obstructions, &c., in which there is no prospect of restoration of the continuity, the lachrymal sac should be at once obliterated, as in any case the condition of the patient is ameliorated by this measure. Thus the troublesome suppuration is not only done away with, but some of the principal causes of the hypersecretion of tears are also removed, and in consequence of it the stillicidium is proportionately reduced.

ART. 92.—A new Treatment of Epiphora.

By J. V. SLOAN, Surgeon to the Birmingham Eye Infirmary.

(Brit. Med. Journal, March 12, 1889.)

This plan of treatment only differs from that recommended by Mr. Bowman in the mode of destroying the tear punctum and its canal. Mr. Sloan uses a pair of narrow bladed scissors, instead of a grooved diameter and Bore's knife, and before making the incision he expands the punctum by the introduction of a probe or pin. Several cases are related in illustration.

ART. 93.—Case of Spontaneous Rupture of the Eye. By Dr. A. FLEMING.

(American Journal of Medical Science, April, 1886.)

CASE.—Rachel Hunt, a colored woman, 35 years of age, was admitted into the Pennsylvania Hospital, September 27, 1885. Two years previously, on 1st the right eye, apparently from some inflammatory affection of the retina. Three

days ago, this eye became the seat of painful throbbings, without any increase of bulk. On the day following, while occupied in some matters which frequently obliged him to hold his head in a dependent position, he was seized with acute pain in this eye, and very shortly he was alarmed by finding that blood was escaping in a distinct jet from it. The pain continued to increase in severity. On admission to the hospital, which was within a very short time after this accident, there was found to be a transverse tear of the cornea, from which arterial blood was escaping with considerable freedom. On introducing a probe through this opening, no trace could be found of the crystalline lens or its capsule; but in other respects the eye presented nothing at all remarkable in its appearance. The hemorrhage was arrested by means of perchloride of iron and cold. Free suppuration followed, and the globe of the eye became considerably diminished in size, but eventually the tear in the cornea cicatrized, and on the 31st October the patient was able to leave the hospital.

ART. 94.—*Case of Ptyriasis of the Eyelashes.* By Dr. JAMES G. HELDICE.

(*Dublin Hospital Gazette*, Jan. 1, 1859.)

CASE.—A weak, scrofulous-looking child came to the Eye Dispensary, Mecklenburgh Street, complaining of inflammation of the eyelids. The tarsal edges were slightly ulcerated and inflamed, and the cilia were very long, and appeared of a shining brownish color, and much thicker than natural. The itching was so intense that she was constantly rubbing the lids, which aggravated her symptoms very much. The only previous treatment had been bathing the eyes with an infusion of chamomile, which she did for four or five days, without deriving any benefit from it. On examining the lashes with a lens, Dr. Heldice detected an immense number of exceedingly small pediculi, about the size of the point of a pin, which, together with their ova, were exceedingly difficult to detach. They differed from the ordinary pediculi in shape and size, the legs being very long in proportion to the body, which was small, and of a circular form. The prescription was ointment composed of corrosive sublimate, 4 grs.; tar, ℞j; and lard, ℞j; about the size of a pea to be rubbed into the tarsal edges of the lids morning and evening. This had the effect of completely removing the disease in about four days, and no relapse occurred during a period of five days longer that the case remained under observation.

This disease is not by any means of frequent occurrence. Mackenzie, in the last edition of his work, mentions only one case of it, and that not occurring in his own practice, but copied from a notice published in the 'Lancet' by Mr. Lawrence. Arlt, of Vienna, states that he has seen the disease occasionally; and Desmarres, of Paris, in his recent work, published in 1858, does not even allude to it.

The species of pediculi peculiar to the body and head are also sometimes found in the above situation; but those described by Mr. Lawrence, and observed in the above case by myself, are, according to my own observation, peculiar to the eyelashes.

ART. 95.—*On a New Mode of Operating for Cancer of the Lip.*

By Dr. O'SHAUGHNESSY.

(*Indian Annals of Medical Science*, July, 1859.)

Dr. O'Shaughnessy observes, that when cancer of the lip is confined to a limited spot, it is easily removed by the ordinary V-shaped incision, but that this procedure does not suffice when the whole lip, and perhaps one or both commissures, are involved in the disease. In a case which occurred in his own practice, the cancer not only occupied the whole lower lip, but the right commissure and a part of the upper lip also, on that side. "I thought nothing could be done in such a case, until the plan struck me of making a lip by detaching a triangular portion of the cheek on either side of the mouth, in the following manner: The whole of the diseased lip to be removed by making two incisions meeting at a point in the centre of the chin, the cheeks then to be divided by two horizontal incisions extending from the angle of the mouth on either side, and continued backwards as far as the masseter muscles; these to

be joined, at their posterior extremities, by two oblique incisions carried upwards and backwards, from either side of the chin, leaving two triangular flaps to be dissected forwards, so as to admit of the apposition of the edges of the V-shaped gap left by the removal of the cancer." An excellent lip was in this way made, and most of the lines of incision had united by the first intention, when, about the tenth day, the patient was carried off from the effects of retention of urine.

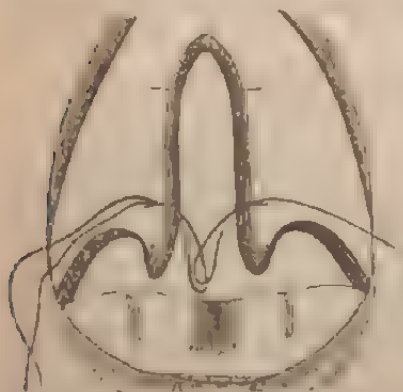
ART. 26.—*On a New Needle for the Operation of Cleft Palate.* By CHRISTOPHER HEATH, Esq., M. R. C. S., Demonstrator of Anatomy at the Westminster Hospital, and Surgeon to the St. George's and St. James's Dispensary.
(*Lancet*, Dec. 13, 1858.)

The operation of staphyloraphy seemed to have attained its perfection in the hands of Mr. Fergusson, who, after the division of the levatores palati, has been enabled to bring the sides of the cleft palate into apposition by means of silk threads, with unvarying success. The introduction of metallic sutures, however, into the practice of surgery, rendered some modification in the operation necessary, and accordingly, in the last four cases operated upon at King's College Hospital, Mr. Fergusson has knotted a silver wire to the thread previously passed across the gap, and has thus replaced the silken by a wire suture. The objection to this method of proceeding lies, first, in the extra complication, the next in the obstacle which the knot affords to the ready passage of the wire through the palate.

In the following modification of Mr. Fergusson's method, Mr. Heath has endeavored to avoid these disadvantages, and also the difficulty which is always experienced in seizing the minute thread at the bottom of the mouth, and drawing it out at the eye of the needle. The needle (fig. 1) employed (made by



Matthews, of Portugal street) differs from the ordinary curved needle in being flattened in the opposite direction—i. e., parallel to the plane of the curve,



instead of at right angles to it. The head of the needle is also movable. The effect of this arrangement is, that the incision made by the needle is at right angles to the edge of the palate (fig. 2), instead of being parallel to it, and thus, apparently, there is less danger of the portion on which the thread rests sloughing away from want of nourishment. Besides, the head of the needle can much more readily be taken hold of by the forceps in this position and drawn out of the mouth, bringing the wire or thread with it, and thus avoiding the difficulty of catching the thread.

CASE.—Sophia S—, æt. 13, was born with a single bare lip, and a cleft in the hard and soft palate

continuous with it. The lip was operated upon successfully when she was an infant, but, there being a very unsightly notch still present, I cut out the old cicatrix, and having pared the lip, brought the edges together, with great improvement to her appearance. The lip being perfectly healed, I proceeded to operate on the soft palate on the 15th of October, 1858. Having divided the levatores palati, and pared the edges of the fissure, I proceeded to pass a single *freshly-annealed* silver wire with the needle I have described; this was easily drawn out of the mouth with the head, and detached through the slit in the eye, and I then passed a double loop of silk in the same manner on the opposite side. The end of the wire was now closely bent into the loop of the silk, and was thus readily drawn through the opposite side of the cleft fig. 2. Two other sutures being introduced in the same way, the ends of each of the wires were simply twisted together, and held the edges of the palate in admirable apposition.

It may be thought there would be a danger of the head of the needle becoming detached, and so dropping into the patient's fauces; but it is effectually retained by the thread or wire being held tightly by the operator's fingers, and as the slit in the eye is on the convexity of the needle, there is no danger of the thread escaping through it prematurely. The use of the *freshly-annealed* wire was suggested to me at the time of the operation by my friend Mr. Barclay, and it is certainly preferable, from its greater pliability, to the hardened wire in common use. I need hardly say that it is prepared by heating the ordinary wire to redness, and allowing it to cool slowly.

The after progress of the case was most satisfactory. The sutures were removed on the fourth and fifth days, when union was quite perfect.

ART. 97.—On Laryngoscopy. By Dr. CZERMAK, of Pest.

(Wiener Wochenschr., No. 2, 1859; and Edinburgh Medical Journal, April, 1859.)

Under the head of a contribution to laryngoscopy, Dr. Czermak relates a case of chronic loss of voice, of supposed nervous origin, chiefly because it was often suddenly aggravated by emotional causes; in which, by means of a small laryngeal mirror and an ordinary study lamp, he was enabled distinctly to make out a small dark-colored tumor, of the size of a small green pea, resting, by a tolerably broad base, on the right true vocal chord. The growth had a somewhat uneven surface, and seemed of soft consistence, inasmuch as each vibration of the chord caused its whole substance to tremble, and when closed on by the glottis, it seemed somewhat elastic; the sudden exacerbations of hoarseness, from emotional causes, depended, no doubt, on the more or less erectile character of the growth. Dr. Czermak only saw the patient once in passing, but suggests the propriety of operative interference in such cases, and relates this case chiefly as an encouragement to others to prosecute this method of diagnosis by means of Garcia's laryngeal speculum, recalling, however, the fact that this method of diagnosis dates long previous to Garcia, and referring for proof thereof to Liston's 'Practical Surgery,' London, 1840, p. 417.

ART. 98.—Case of Polypus of the Esophagus.

By Professor A. H. MIDDENDORFF, of Breslau.

(Gaz. Heb. de Méd. et Chir., Oct. 8, 1868.)

The following interesting case is from a monograph ('De Polypus Esophagi,' Breslau, 1868) by Professor Middendorff, which contains a complete résumé of what is known in connection with cases of the kind.

CASE.—Joh. Jaenech, born in 1811, lost accidentally, when young, the left eye, and a few years later, the left arm. He afterwards enjoyed good health, abstaining from excess of food and drink, and avoiding, particularly, irritating substances. In the spring of 1851 he contracted a violent catarrh, which rendered him deaf for a long time. A catarrhal inflammation of the pharynx remained, and embarrassed deglutition, particularly that of dry bread; excretion of pituitous liquid between the meals; sensations of pressure at the epigastrium and behind the sternum; painless dysphagia, but gradually increasing,

very marked in certain positions of the patient, and accompanied by eructation, cough, and dyspnoea; the difficulty of deglutition daily augmented, finally, the ingestion of liquid aliments alone possible. During an attack of violent cough, the patient once vomited sanguinolent mucus.

At the end of the year 1852, the trouble of deglutition having reached its intensity, he drank water copiously, and was seized with violent vomiting, during which a body resembling a kidney was raised into the mouth between the teeth. An intense dyspnoea followed. The patient succeeded in swallowing the body in question, and applied for medical aid. When Professor Middeldorff first saw the patient he was pale and much emaciated; the finger, introduced into the pharynx to the posterior wall of the larynx, did not come in contact with any foreign body; a probe, of half a finger's diameter, was passed down in the median line, and in directing it to the right side, an obstacle was found, which could be easily overcome, and was not very deeply seated.

On the 14th of January, 1853, Professor Middeldorff directed the patient to take a large quantity of warm water and an emetic. During the violent vomiting which ensued, a turgid and visciduous body appeared between the dental arches—this was the polypus. Professor Middeldorff seized it with the forceps of Moseus, drew it toward the left commissure of the mouth, in consequence of which the difficulty of respiration was somewhat diminished; a ligature of waxed silk thread was applied over the tumor, at a level with the base of the tongue. The operation was attended with repeated vomitings and great dyspnoea. The polypus was afterwards divided with the scalpel three quarters of an inch above the ligature; it became turgid, of purplish color, and a great quantity of blood escaped from it; in a short time its color rapidly diminished. The patient afterwards swallowed the pedicle of the tumor and the ligature, the extremities of which were attached around the left ear; the vomiting, oppression, and dyspnoea ceased immediately; the patient felt very comfortable; it was ascertained, on repeated trial, that slight traction at the end of the ligature produced pain. The patient was ordered not to touch the thread, to use fluid and cold food, and to present himself every second day. Nothing remarkable occurred up to the eighteenth day after the extirpation. At this time the loop of the ligature rose into the mouth; it measured twelve millimetres in diameter, and thus encircled a pedicle of about thirty-seven millimetres in circumference. From this moment the trouble of the patient ceased; deglutition and respiration were unembarrassed; the appetite soon revived, and the patient gained in strength and flesh.

Professor Middeldorff saw his patient five years after the operation; his health was then excellent; the excretion of pituitous liquid had ceased. On external examination of the neck nothing abnormal was discoverable; a probe of eight lines diameter still met with a slight obstacle at a level with the larynx; in short, the health of the patient was perfectly established.

Examination of the tumor.—The excised tumor measured eight centimetres in length and four in thickness, and weighed about forty grammes; it was cylindrical; its smooth and shining surface presented some inequalities and excoriations, which bled easily; it was covered externally by a layer of stratified pavement epithelium; underneath this a layer of conical papillae was detected; the papillae were visible to the naked eye, and arranged with great regularity in a spiral around the longitudinal axis of the tumor, and removed vessels at their base; underneath the papillary layer the proper substance of the tumor was situated; Professor Reichenow found it, on examination, very vascular, but without nerves; it was composed of connective tissue, in which the cellular elements were still very visible. In other words, a connective tissue not yet arrived at maturity; here and there fat globules, either free or in cells, were detected; it was, in short, a vascular fibrous tumor, covered with papillae. By comparing the length of the extirpated portion with that of the remaining portion of the polypus, and by making repeated measurements and explorations in the dead body, Professor Middeldorff arrived at the conclusion that the extremity of the polypus was situated about two inches from the carotid, and that the pedicle was attached at about a level with

the larynx. Although these data are merely approximative, they harmonize, in a remarkable manner, with the results furnished by the catheterism.

ART. 99.—*Case of Dislocation of the Fourth and Fifth Cervical Vertebrae.*
By Dr. W. M. RYER.

(*Southern Med. and Surg. Journal*, Feb. 1859.)

CASE.—The subject of this accident was a girl, seven years of age, of lymphatic constitution, the daughter of Dr. Hepburn, of Mokelumne Hill. When seen by Dr. Ryer, the patient's head "was most singularly and immovably fixed, much bent to the side, the ear approximating but little in advance of the right shoulder, and in a position no child in a normal condition could for a moment assume; the slightest motion tending to change the relative position of the head and body producing intense pain.

"The father, Dr. Hepburn, an aged and very intelligent practitioner of medicine, had watched the child with a parent's solicitude for the six previous days and nights, and neither during sleeping or waking did the child move its head from the position it had assumed from the instant of the accident. As the right clavicle was fractured at the time, the doctor was inclined at first to believe the child was favoring the fracture, and was unwilling to entertain the unpleasant thought of so serious a complication as luxation of the spine.

"The child had fallen, six days previous to my visit, from a high bed, and is supposed to have struck the back and left side of her head. The father saw her within a half minute after, and found her head and neck distorted precisely as at the time of my examination; there had been no change for six days. Such distortion, I believed, must have arisen from muscular contraction or bony displacement. We examined every muscle whose contraction would be likely to produce the deformity, and found them loose, soft, and uncontracted. Upon tracing the spinous processes from below to the articulation of the fourth and fifth cervical vertebrae we found them firm, at this point, an obtuse angle, and depart from the natural direction about forty degrees. The intellectual faculties were good, and sensation and motion not greatly impaired. I could form no other diagnosis than was formed by the medical gentlemen in attendance previous to my visit. It was clearly a dislocation of the left oblique articulating process—the process of the fourth riding over the upper margin of the one with which it was articulated below.

"As objections were made to the administration of chloroform, we attempted the reduction without it, and failed. We then administered this anæsthetic and succeeded to our fullest anticipations, Dr. Soher, and other gentlemen who assisted, distinctly recognizing the instant of time when the reduction was effected. The child immediately had full motion of her head and neck, and is now entirely recovered."

(B) CONCERNING THE CHEST, ABDOMEN, AND PELVIS.

ART. 100.—*A rare form of Fracture of the Clavicle.* By M. ROBERT.

(*L'Union Médicale*, No. 79, 1855; *Med.-Chir. Review*, Oct. 1858.)

In the adult, fractures of the clavicle are almost always oblique, the periosteum being torn and the fragments displaced. Sometimes, however, in the adult, but oftener in the child, the fracture may be transverse, without laceration of the periosteum or displacement. This was the case with a miserable looking lad, aged sixteen, brought to M. Robert at the Hôtel Dieu, his left clavicle having come in contact with a table during a fall. There was no displacement, and the bone presented quite its normal appearance, there being neither ecchymosis, projection, nor depression. On passing the fingers along it, however, with a gentle pressure, a painful spot, with a slight mobility at it, was felt; and whenever the long, thin bones—such as the fibula, ribs, or clavicle—have been exposed to violence, and no deformity is observed, pain limited to a very small portion of their course is quite sufficient to give rise to the belief in

the existence of a fracture. To search here for crepitation would only rupture the periosteum, still entire, and thus increase the gravity of the case. All that was required was to keep the arm against the chest, and caution the patient against using it—a caution of importance, for, there being no displacement and but little pain, the patient, believing the bone not broken, might easily employ the limb dangerously.

In a few days the tissues surrounding the fractured point became inflamed, and the swollen periosteum formed a projecting ring uniting and maintaining the fragments in contact; confirming entirely the diagnosis derived from the localized pain and slight mobility first observed. Cases come to the hospital a week or fortnight after the accident, exhibiting merely this circular ring, the nature of which may be yet more difficult to understand, as the patients have often forgotten that a fall or a blow has taken place. It is well to be aware of this, as the projection may be mistaken for a periostitis or an exostosis. It is easily ascertained to be a ring constituting a provisional callus, by imparting to the bone movements which are easily perceived, the ring being as yet only in its fibrous or cartilaginous condition. It gradually ossifies, and is replaced by a small definitive callus. Ordinary fractures of the clavicle are hardly ever accompanied by a provisional callus, this being only found when the periosteum is preserved entire.

ART. 101.—*On some undescribed Affections of the Spinal Column, the result of pressure.* By Dr. J. H. PACKARD, of Philadelphia.

(*American Journal of Medical Science*, Jan. 1859.)

There is a result of indirect violence not mentioned in any systematic work, which is nevertheless of some importance. This is produced by powerful pressure at or near each extremity of the vertebral column.

"A coal-miner," writes Dr. Packard, "was sitting upon a large piece of coal, and bending forward to his work, when a mass was detached just over his head, and came down upon him. The force thus brought to bear was immense, and its results were in proportion; the sacrum was fractured transversely as well as longitudinally, and its lower extremity was comminuted, as was also the coccyx; the right sacro-iliac symphysis was forced open; the horizontal ramus of the pubis of each side, and the ascending ramus of the ischium of each side were fractured. There was also a fracture of the left tibia, and a complete rupture of the urethra.

"When force of this kind acts upon the true vertebrae only, it may have a very singular effect. A young man, 17 years of age, was admitted into Pennsylvania Hospital, in September, 1855; he had been sitting upon a log, beneath a staging upon which there were a good many people, when the staging gave way. His spinal column had thus been subjected to great force at each extremity. When brought to the hospital, he was much collapsed, and suffering extreme pain, his back presented a striking prominence at about the eleventh dorsal vertebra. The pain extended all around his body; neither the sensibility nor the motions of his lower limbs were impaired. He was laid in bed upon his right side; reaction having occurred, counter-irritation and diaphoretics were employed, and his bladder emptied once by means of a catheter. No bad symptom ensued; a week after his accident, he was able to stand up, holding by a chair, and he gradually gained strength, although the deformity of his back remained. At the end of six weeks he was well enough to be discharged.

"Now, what was the lesion in this case? The eleventh dorsal vertebra formed a very marked projection backwards; or, to speak more correctly, the spinous process of that bone constituted the apex of the angle made between the upper and lower portions of the vertebral column. There could not have been any great degree of compression of the cord, without some symptoms; but such compression would seem inevitable, if luxation had been present. Nor is it at all certain that luxation can occur in any but the cervical vertebrae; no instance is recorded in proof of such a possibility.

"The supposition of a fracture was excluded by the impossibility of lesion-

ing the angular bending of the spine, by the want of crepitus, and by the rapid recovery; and besides, had such deformity been the result of fracture, injury to the cord would most certainly have been sustained.

"Sir Astley Cooper relates a very similar case to the above, except that in it there were two or three spinous processes broken also, and a laceration of the muscles on one side: complete recovery ensued.

"It was suggested by a gentleman who saw the case of which I have given the details, that the injury was neither a fracture nor a luxation, but a squeezing out forwards of the inter-vertebral substance, the mechanism being the same as when the body of a vertebra is crushed by indirect violence. The inter-vertebral fibro-cartilage is held in place by very close and strong attachments to the bones above and below; it is, moreover, confined on every side by the ligaments, and especially in front by that one which usually receives the name of *anterior common ligament*; so that such a displacement of it would seem almost impossible practically. This explanation must, therefore, be looked upon as purely theoretical, until an opportunity occurs for verifying it by dissection.

"Two cases of somewhat similar deformity have come under my notice, although, as will be seen, their attendant circumstances were different; I call them similar, because they likewise concerned the eleventh dorsal vertebra, which was abnormally prominent, and because the precise nature of the lesion could not be detected. In one of them, the child was a stout and healthy girl, four years of age; five or six weeks previously to my seeing her, she was known to have fallen down some steps. When her mother brought her to me, she told me that she had noticed, a few days before, something peculiar in her walk, and was led to examine her, when she found a lump in her back. This lump proved to be the spine of the eleventh dorsal vertebra, projecting very slightly to the left, and maintaining perfectly its relation to the transverse processes and to the ribs; as if the lower part of the spinal column had been displaced forward *en totalité*. The child walked quite feebly, and carried its shoulders a good deal backward. No effect had been produced upon the bladder or rectum. Unfortunately, this very interesting case has passed beyond my reach.

"The other case was that of a girl $3\frac{1}{2}$ years old, not at all healthy in appearance, and of small stature. About a year before she was brought to me she had a very serious illness of some kind, and never perfectly recovered from it; at about the same time she fell down some stairs, and to this fall her mother seemed disposed to attribute the affection of her spine. She began to be quite lame about six months afterwards. Upon examination, three months ago, the eleventh dorsal vertebra was seen to project backward to a marked degree, much as in the preceding case; and this child, like the other, walked feebly, and carried its shoulders a good deal back. There was, however, some difficulty in urination in this case, and the right lower extremity seemed shortened. An accurate investigation was almost impossible, from the extreme fretfulness of the child. A stimulating liniment was ordered, with tonics, and a simple but nutritious diet; but, as might have been predicted, no change has taken place in regard to the local affection.

"Now, in these two children, fracture may be at once excluded from consideration in making a diagnosis, for obvious reasons. Luxation seems equally improbable. Might there have been a displacement, partial or complete, of the inter-vertebral substance, or possibly a destruction of it by disease? And if so, how are we to explain the peculiar deformity, and the carrying back of the shoulders? The recent date of the first case, and the robust health of the child, excluded from my mind the idea of disease of the bones or fibro-cartilages; while in neither was there the tenderness on pressure, to say nothing of the symptoms connected with the spinal marrow, which usually accompany such affections.

"To explain the cases now related, it seems to me that we must assume the possibility of some as yet undescribed lesion of the vertebral column; that neither luxation, sub-luxation, nor fracture could have existed without symp-

toms quite different in degree, if not in kind. The exact nature of this lesion will probably remain obscure until an opportunity occurs for studying it by dissection."

ART. 102.—*Fracture of the Tenth Dorsal Vertebra, and elevation of the depressed portion.* By Dr. STEPHEN SMITH, Surgeon to the Bellevue Hospital, New York.

(*New York Jour. of Medicine*, Jan. 1888.)

CASE.—David King, derrick-man, born in Ireland; æt. 41; temperate: of good constitution, and of robust appearance; large frame, and well nourished. Admitted October 12th, P. M.

History.—Two hours previous, when riding up 9th Avenue, he was thrown from a cart, and struck, in some manner, upon his back; was not rendered unconscious; did not feel hurt until some one attempted to take him up; then found that he was paralyzed, and that the motion caused him intense pain. Could not tell whether the injury he had received was from striking upon some projecting point, or indirectly, by force transmitted from a blow received elsewhere.

Examination.—When admitted he was collapsed; pulse too frequent and feeble to be counted; respiration 18 to the minute. Paralysis and anæsthesia of the entire body was complete below the sixth intercostal space. There was moderate priapism. The temperature of the body was normal. The only subjective symptom was severe pain in the back of the neck, and pain, numbness, and tingling in the arms. Upon examination, a space between two of the spinous processes of the dorsal vertebra was detected, in which two fingers could be placed; no corresponding superficial mark of injury was visible. Nothing abnormal could be discovered in the cervical region. Though motion was productive of severe pain in the back, the pain did not appear to be so excruciating as frequently happens in spinal injury. The urine was drawn by catheter, and a free administration of stimulants and an anodyne ordered.

Progress of the case.—Oct. 13th, A. M. Pulse 112, and of considerable force; respiration 26 and mainly abdominal; the temperature of the body and of the lower extremities was exalted; anæsthesia had extended slightly upward upon the body to the fifth rib, and the pain and numbness of the neck and arms had decidedly increased. The penis was not erect, but very easily excited on irritating the spine. The urine was again drawn by catheter, and the treatment of last night continued. P. M.—Sloughs had commenced upon the heel, and upon the ball of the great toe of the left foot, and over the external malleolus of the right ankle. Seen by Drs. Stephen Smith, J. R. Wood, and Crane, and in consultation immediate trephining of the vertebral column was determined on, as affording a possible chance for the patient's recovery.

Operation.—The operation was performed in the ward by Dr. Stephen Smith. Chloroform was administered, and an incision of six inches in length made over the spinous processes of the dorsal region. An extravasation of blood nearly the length of the incision was found in the subcutaneous tissue, and a depression of a lamina upon the right side of one of the lower dorsal vertebra detected. An unsuccessful attempt was made to divide the lamina upon the opposite side by a rotatory saw; the trephine was then applied to the same, and afterwards Hay's saw. The depressed portion of lamina was pulled out by a duck-billed forceps, and through the opening thus made flowed from six to twelve ounces of dark, extravasated blood.

The patient was entirely under the influence of chloroform during the operation, lying upon the side; respiration free, and all the time satisfactory. No benefit resulted from the operation, and death occurred soon after.

Autopsy.—Fracture of the body of the tenth dorsal vertebra upon the right side, extending from the base of the transverse process half way to the median line anteriorly, without displacement—fracture of the arch of the vertebra upon the right side with depression; and extravasation of blood to a large amount, extending from the lower cervical vertebra to the sacrum. Considering the increasing paralysis, this extravasation was probably still extending upward at the time of the death of the subject.

ART. 103.—*On the Diagnosis of the Sacro-iliac Disease.*
By Mr. ERICHSEN, Professor of Surgery in University College, London.

(*Lancet*, Jan. 8, 1859.)

Mr. Erichsen gives the name of *sacro-iliac disease* to disease of the articulation between the sacrum and the pelvis. The diagnosis, he tells us, is not always easy, and he points out five affections with which it may be confounded—namely, neuralgia of the hip, sciatica, spinal disease, coxalgia, and disease of the pelvic bones.

1st. *Neuralgia of the hip* in young females may readily enough be confounded with the earlier stages of sacro-iliac disease. But the widely spread and superficial nature of the pain in the neuralgic affection, the co-existence of the hysterical temperament, the sex of the patient, and the absence of all limitation of morbid action to the neighborhood of the diseased articulation, render the true nature of the affection sufficiently clear. The obliquity of the pelvis, which occasionally occurs in neuralgia of the hip, and causes apparent elongation of the limb, is readily removed when the patient lies on her back; whereas, in sacro-iliac disease, position does not affect the displacement of the limb on the affected side.

2d. *Sciatica*.—In this affection, the age of the patient, usually more advanced than that of the subjects of sacro-iliac disease; the seat of the pain, below the articulation, and its extent down the back of the limb; with the absence of elongation, will enable the surgeon to effect the diagnosis.

3d. *From spinal disease*, the diagnosis is usually sufficiently easy, for although the situation of abscess resulting from caries of the vertebrae may in many cases be the same as that which is occupied by the collections of pus resulting from "sacro-iliac disease," yet in caries of the spine, in the vast majority of instances, excursion of the vertebrae has become prominently marked by the time that the abscess has assumed so great a magnitude as to occupy the inferior lumbar or gluteal regions. In those rare cases in which, as an instance that was recently under my care, caries of the vertebrae, with consecutive abscess, takes place without any angular curvature, it will be found that the patient complains of tenderness on the surgeon percussing the spine opposite the seat of disease; that the spinal column has lost its flexibility, moving stiffly and as a whole; that there is an absence of that elongation of the limb on the affected side, dependent on displacement of the wing of the pelvis, which is so early observable in sacro-iliac disease; and lastly, that examination of the sacro-iliac synchondrosis neither elicits pain, nor reveals swelling, or any of the other signs of disorganization of that articulation.

4th. *Coxalgia* is the affection that is most easily confounded with sacro-iliac disease; and that from which it is of most importance to make the diagnosis. It is especially from that variety of hip-disease that commences in the acetabulum, that primarily involves the pelvic bones, and only secondarily implicates the joint, that it is difficult to distinguish sacro-iliac disease, and the importance of effecting this diagnosis is great when we reflect that these cases of hip disease may now successfully be subjected to operative interference, whilst sacro-iliac disease does not admit of relief or removal by these means. Now, the diagnosis between coxalgia in all its forms and the disease we are at present considering may be effected by attention to the following circumstances:—

1. The seat of pain on pressure. In hip-disease the patient suffers most severely when pressure is exercised deeply behind and above the trochanter, in the hollow behind that osseous prominence, or when the compression is exercised against the anterior part of the hip joint through the pectineus muscle. In sacro-iliac disease little or no pain on pressure is experienced in these situations, but tenderness is elicited by pressure upon the sacrum and along the line of junction between the sacrum and ilium behind and altogether away from the hip.

2. The movements that occasion pain are different in the two diseases. In hip disease, abduction and rotation outwards, or pressure of the head of the

femur into the acetabulum, aggravate, to a greater or less degree, often to an unbearable extent, the sufferings of the patient. In sacro-iliac disease the thigh may be moved in all directions, ab- or ad ducted, rotated, flexed, or extended, whilst the patient is lying on her back, without any increase of suffering, *provided the rule of the pelvis be fixed by the surgeon*. Should this precaution not be taken, the movement impressed on the thigh will be communicated to the diseased articulation and will necessarily occasion suffering.

(3) The signs connected with the alteration in the length of the limb differ in the two diseases. In hip disease there may be, and usually is, in the advanced stages, considerable shortening. This never occurs in sacro-iliac disease. In the earlier stages of coxalgia there may be, as there is throughout in sacro-iliac disease, elongation of the limb. But there is an important point connected with this. The elongation in hip disease is always appreciable by measuring from the anterior-superior spine of the ilium to the inner ankle. In sacro-iliac disease, however, the measurement between these two points on the opposite sides of the body exactly correspond, the seat of the elongation being situated still higher up.

(4) The alteration of the level and of the prominence of the two anterior superior spines, in sacro-iliac disease, may be confounded with that arising from the obliquity of the pelvis usually occurring in the early stages of coxalgia. But here also the diagnosis may be effected by observing that the displacement of the bone in sacro-iliac disease is permanent, and is not influenced by position. The obliquity of the pelvis in hip disease, giving rise to apparent elongation of the limb, is dependent on a twist in the lumbar spine, which may be rectified by placing the patient on his back, and using a little manipulation. The alteration in the level of the two ilia, in sacro-iliac disease, is not modified by change of position, or by any movement that may be impressed upon the spine.

5th. *Disease of the pelvic bones* may of course occur independently of any affection of the sacro-iliac articulation, and when so occurring, it always commences at a distance from it, the crista ilii, the tuber ischii, or the acetabulum, being the usual seat of the disease. When occurring in the first of these two situations, the resulting abscess seldom attains a very large size, and is altogether above or below the synchondrosis, the outline of which can be felt clear and unobscured by swelling of any kind. When the abscesses are opened, the sinusses that result will lead directly down to the rough and carious bone, examination of which will leave no doubt as to the nature of the cases. In these cases, also, no change takes place in the length of the limb, or in the position of the side of the ilium.

When the acetabulum is primarily affected, the difficulty of diagnosis may be greater, in consequence of the large size and often infra-pelvic nature of the abscesses, and the co-existence of a certain amount of displacement or elongation of the limb. But here the same circumstances that enable the surgeon to effect a diagnosis in ordinary coxalgia—viz., the pain in movement influencing the hip-joint merely, and the increased length of limb, as determined on measuring from the anterior superior spines—will prevent his falling into error as to the true nature of this disease.

ART. 104.—Displacement of the Coccyx sideways. By Dr. ROSEN.

(*Prager Vierteljahrsschr.*, No. 18, 1858, and *Edinburgh Medical Journal*, Nov. 1859.)

CASE.—“A corpulent woman, æt. 30, fell from a table on a chair, so that its back came right between her thighs. She instantly felt severe pain in the coccyx, but continued able to move about till evening, sitting increasing the pain very much. In the evening the pain was so great, extending up the spine, that she was obliged to go to bed, and soon after could neither turn nor rise up. After a painful night, R— found this otherwise blooming woman quite immovable, with distorted features; she complained of violent pain in the coccyx, and a painful tension drawing feeling from below, up to the neck, which also extended down the arm. She could move the forearm a little. The slightest motion of the body or head to one side was impossible, and still more

so sitting up in bed: confused headache, and some mental disturbance were also present. She made no complaints of her lower extremities, nor of her arms, and urinated without difficulty. After placing her on her right side, a small swelling, the size of a hazel-nut, was felt near the notch of the buttocks next the left ischium, which, on closer examination, proved to be the coccyx separated from the sacrum, and forced from the median line towards the left ascending ramus of the ischium. The obtuse end of the sacrum could easily be felt between the buttocks. By placing one finger in the rectum the dislocation of the coccyx could be still more easily felt; forcible pressure downwards and towards the right buttock caused it suddenly to glide into its normal position, whereupon the patient declared herself relieved, herself as if roused from a dream, and all her pains vanished. She could move about freely; but pain in the sacro-coccygeal region prevented her sitting up; her expression was also completely changed. After a few days, a dull pain in the sacro-coccygeal region preventing sitting, was all the uneasiness that remained; and in five days, all of this that was left was a slight burning sensation at the injured spot. The irritation of the spinal marrow observed in this case, in which only the very lowest filaments could have been disturbed, and which nevertheless sent the stream of disturbance to the brain itself is a most interesting example of mechanical irritation, as evidenced by its instant disappearance on the reduction of the dislocation.

ART. 105.—*Empyema presenting in the Lumbar Region, and deriving pulsation from the neighbouring arteries.* By Dr. G. OWEN REES, Physician to Guy's Hospital, &c.

(*British Med. Journal*, Aug. 21, 1858.)

In this very unusual case a collection of fluid, originating, no doubt, in empyema of the left pleural cavity, appeared in the loin, as a pulsating aneurism-like tumor.

CASE.—Daniel Brooks, æt. 2. He had enjoyed good health until about eleven months ago, when he was admitted into Guy's Hospital, under Dr. Hughes, with what appears, from the record of his case, a decided attack of pleurisy, with inflammatory effusion on the left side, the symptoms of which soon subsided, and he was in a few weeks enabled to return to school. Three weeks ago, whilst he was washing him, his mother observed a swelling in the lower part of the back; this has given no pain either before or since its discovery, and he is not aware whether or not it has increased in size.

Present condition.—He is a fair-complexioned boy, spare and of delicate aspect, and of somewhat more than average intellect. The chest is prominent in front, and rather deep from before to behind; the lower true and false ribs are more prominent on the left than on the right side, with the intercostal spaces pressed out on a level with them. On the right side, the ribs rise and fall naturally; there is resonance to percussion; the vesicular murmur is healthy, almost purile; the left side rises but little on deep inspiration; there is total absence of vesicular breathing throughout the lower half of that side, and no vocal fremitus. The heart occupies the centre of the chest; its pulsation is evidently below the ensiform cartilage; at this point the sounds, which are natural, are most distinct. The abdomen is soft and yielding. On the left side of the spine, above the crest of the ilium, is a tumor, rounded in shape, with a diameter of two and a half to three inches. It conveys to the touch a sense of fluctuation; the fluid is apparently not deep seated; there is no pain, redness, or heat of the integument covering it; and, on applying the stethoscope, a distinct pulsation is experienced which is synchronous with the arterial pulse. There is no tenderness or irregularity in the course of the vertebral column. The tongue is very slightly furred, red at the tip and edges. The appetite is good; the bowels are daily relieved; the urine is healthy.

January 14th.—He was ordered to have half an ounce of cod liver oil three times a day, and to have a linseed-meal poultice applied to the loins; and middle diet.

18th.—The tumor was slightly increased in size.

21st.—The swelling now visibly rises with each systole of the heart's action. There is now a little pain produced by pressure.

28th.—The wall of the tumor is becoming thinner, the skin much discolored. He suffers hardly any constitutional symptoms, and has somewhat improved in appearance since admission.

February 2d.—In consequence of the oil producing nausea, he was ordered ten minims of tincture of sesquichloride of iron, in infusion of calumba, three times a day.

9th.—The tumor has now attained the size of a large orange; the pulsation is very strongly marked. The patient's health seems hardly so good as formerly.

11th.—The assistant-surgeon, Mr. Bryant, to-day explored the tumor with a fine trocar and cannula; and pus having been discovered, it was opened with a lancet, a few ounces of pus evacuated, and a poultice applied. On measuring the circumference of the chest over the lower part of the ribs, it is found that the side which appeared the largest, from the ribs being pushed out, is in truth an inch less than the healthy side.

13th.—The free discharge of the contents of the abscess is somewhat prevented by the opening becoming obstructed by flakes of corpuscular lymph. The pulse is small and weak, 120.

15th.—This morning the wound, having for a short time been obstructed, reopened, and a large quantity of healthy pus, amounting to nearly two pints, was evacuated. He still suffers but slightly in general health, and complains of no pain. Ordered to take a chop daily, and three ounces of wine.

24th.—The abscess still discharges freely. Pultices are still applied. The prominence of the left side of the chest is much less marked; and a decided lateral curve exists in the spine, the convexity looking towards the healthy side (right).

March 6th.—There is now a considerable amount of curvature of the spine towards the right side, producing a striking alteration in the conformation of the chest, compared with the appearance presented on admission; the *right* side of the chest being now very prominent, but perfectly resonant, while the left is flattened, but remarkably dull. The impulse of the heart is best felt just to the left side of the lower end of the sternum, the apex being apparently tilted up more than formerly, in consequence of the subsequent curvature. The abscess is still discharging very freely; the patient's health begins to suffer; pulse 110; tongue clean, appetite moderate; with frequent flushings of the face.

13th.—The hectic fever is now strongly marked, and the patient is evidently losing flesh. He has again unsuccessfully attempted cod-liver oil, and is now taking half a drachm of syrup of iodide of iron, in equal parts of infusion of quassia and calumba, three times a day. The walls of the abscess are somewhat contracted; the left side of the chest is still very dull; yet the neighboring respiration is much more evident; bronchophony is heard lower down, and, at the apex of the lung, puerile breathing.

19th.—Harsh respiration may now be heard over almost the whole of the left lung, and loud *ceophony*; there is still a good deal of dullness; he is certainly losing flesh. He is ordered to continue the mixture, and, in addition, to take two drachms of glycerine three times a day.

30th.—He perspires profusely. From this time he fell into a hectic condition, and continued to sink, without any symptoms calling for particular note.

April 20th.—Night convulsions have at intervals occurred, and partial paralysis of the right side is evident. He is quite unconscious.

21st.—He died.

Autopsy, six hours after death.—The body was extremely wasted. The surface of the brain presented the appearance, not of acute disease, but of chronic wasting. The subarachnoid spaces contained a large quantity of serous fluid. On the sides, a small quantity of purulent fluid was seen, and a few tubercles. At the base was a small quantity of tough lymph, with tubercles; and in the fissure of Sylvius, on each side, the tubercles were in great abundance; they

were numerous, also, in other parts. The lateral ventricles contained an increased quantity of fluid; the surface of them, as well as of the fourth ventricle, was granular all over. The left lung was contracted to a small space, and occupied the upper part of the chest. The lower half of the chest constituted an abscess with the diaphragm below: a long sinuous opening passed behind this muscle for about six inches to the loin below, where it was emptying itself. The left lung contained tubercles at the upper part, whilst the lower lobe of the right lung was consolidated by red hepatization. The heart, with its lining membrane, was healthy; as likewise the abdominal viscera. Not a trace of tubercle could be discovered in the peritoneum.

ART. 106.—A watery collection in the abdominal parietes simulating Ascites.

By Dr. FÄLICH.

(*Prager Vierteljahrssch.*, t. iv., 1858; and *Archiv. Gén. de Méd.*, Jan. 1859.)

CASE.—A woman, whose abdomen had rapidly increased in size, and presented all the ordinary signs of ascites. Paracentesis was performed in 1847, and a considerable quantity of serum evacuated. After this the fluid accumulated again, and the patient sank from exhaustion in 1858. On examination after death, there was an enormous quantity of fetid, turbid, flocculent fluid between the integument and the abdominal muscles, and at the bottom of the cavity two cherry stones. The third portion of the duodenum was adherent to the peritoneum, and the cavity of the bowel communicated with that in the abdominal parietes by four holes of about the size of peas. The other intestines were mutually adherent in several places.

ART. 107.—On the radical cure of Hernia by the metallic seton. By (1) Mr.

REDFERN DAVIES, Surgeon to the Birmingham Workhouse Infirmary, and (2)

Mr. T. SPENCER WELLS, Surgeon to the Samaritan Hospital.

(*Med. Times and Gaz.*, Feb. 5, and Feb. 12, 1859.)

The idea of treating hernia in this manner appears to have occurred to these two surgeons almost simultaneously. Mr. Redfern Davies gives four cases of femoral hernia, and two cases of ventral hernia, in which the operation was carried out very successfully. He also refers to more than thirty other cases upon which he has operated, and of which he proposes to give the history on another occasion. Mr. Wells gives only one case, and that one in which Wutzer's operation had been tried previously with only partial success. It does not appear, indeed, that Mr. Wells is disposed to propose this operation as a substitute for Wutzer's operation, which operation, he says, "is so very safe and successful in the cases to which it is applicable, that I do not think we can improve upon it."

1. Mr. Redfern Davies' Cases.

Thomas M—, æt. 20, had been the subject of a femoral hernia, the result of a strain, for two years; it protruded constantly; in size about that of a pigeon's egg, and on account of its painfulness prevented him working. Accordingly, the patient on his back and the buttocks well raised, the hernia was returned, the little finger carried well through the crural canal and femoral ring, the artery being plainly felt beating on the outside. A well curved canula needle was carried on the finger, and its point made to press against the abdominal parietes; the needle was then thrust through them, and, a silver wire being passed into the eye, it was drawn through. A small piece of vulcanized India-rubber, about the size of a split pea, attached to the crural end, and fastened by means of a split shot; the other extremity was then passed through another piece of rubber about the size of a florin, the two extremities drawn tightly together and fastened by a split shot. A portion of integument was thus drawn into the canal.

The wire was loosened on the seventh day, and finally removed on the ninth. There was a copious discharge of a very thick yellowish-green pus in the track of the wire, and around considerable thickening from effusion into the tissues.

That portion of the wire which was inside the body, i. e. between the points of exit and entrance, was quite bright; water-dressing and compress applied.

Upon examination a few days ago, by some of my professional friends, he was found radically cured.

The next case was that of a woman, which is so similar that I therefore do not detail it.

The third case, Amelia M—, *æt.* 50, has been ruptured for three years. The hernia was about as large as an orange, and the femoral ring would admit a man's thumb. For two days she went on very well, and had her bowels opened well once. On the third day she complained of pain in the abdomen, chiefly at the epigastrium; firm pressure around the seat of operation was not felt. In the evening there was a tympanitic condition of the abdomen on percussion; she said she should be better if her bowels were opened, and accordingly she had a dose of castor oil and tr. of assafoetida. In the morning, bowels not opened; tympany increased; pulse weak; tongue dry; skin dry; and she vomits everything. No pain around the seat of operation, and no inflammation can be seen there. She was ordered ice, brandy, and injections of castor oil, turpentine, and tr. assafoet. ; also croton oil by the mouth; a long tube was passed per rectum, and only a little flatus escaped. In the evening bowels not opened; injections coming away unaltered; stercoraceous vomiting, and much troubled with wind on the stomach. In short, on the fifth day she died.

Post-mortem examination.—Abdomen swelled and tympanitic. Upon being opened, a considerable escape of gas; great omentum injected.

Upon carefully examining and removing the intestines, they were found to be injected, but otherwise healthy in appearance, till the junction of the ileum and cæcum was arrived at; this portion was found bound down by old adhesions, which, being separated, an abundant escape of pus took place. Near the ilio-cæcal valve was an ulcer of about the size of a shilling, its edges raised, indurated and ragged, the surface depressed, and presenting a perforation of about the size of a split pea. The surface of this ulcer looked to the fascia beneath, and, by adhesions before spoken of, was attached to it, preventing the escape of feces into the peritoneum.

The ilio-cæcal valve itself presented usual appearances, but at the aperture between the ileum and cæcum was a hard, flattened piece of feces, blocking up the communication.

The portion of the external surface of the abdomen, comprising the operation, presented the three apertures of exit of the wires, through whose track a little healthy pus was exuding, and around each was some thickening of the tissues. On the visceral surface of the abdomen the peritoneum was in a perfectly normal state, no sign or trace of any inflammatory action being present in it. Each puncture was cleanly cut, and presented no inflammatory action. That portion of the silver wire which was contained in the body was quite bright and unaltered. The conclusion we came to was, that the cause of death was the perforating ulcer of colon, and that the hernia was, as far as it went, in all respects, as well as could have been wished.

Alice L—, *æt.* 50, has been ruptured on both sides for nearly twenty years. The femoral rings are very large, admitting about two fingers. The ruptures extend to the middle third of the thigh, in size about that of a man's head. They are easily returned, but no instrument or apparatus will retain them; consequently she can only lie and sit, locomotion being very painful.

Upon this case I applied my modification of Wutzer's instrument, using a plug 3 inches in circumference, big enough to fill the ring well—length of wooden plug invaginated $2\frac{1}{2}$ inches, distance of exit of needle from edge of *doigt de gant* $2\frac{1}{2}$ inches. The surface of the wooden plug was painted over by a very elegant preparation of cantharidine held in a solution of collodion: one grain of the former to one ounce of the latter. The instrument was applied for nine days, and on its removal the usual treatment of spica bandage and compress was applied.

The case has been submitted to the examination of very many of my professional friends, and it is found to be most radically cured. I intend operating on the other side shortly.

These complete the list of femoral hernia.

James P.—, *ret.* 26, has been the subject of a ventral hernia for four years; the result of a strain. In size it is about that of a pigeon's egg.

The plan here adopted was by wires, and executed in the following way:—

The hernia having been returned, the curved trocar containing the needle before alluded to was carried by the finger well through the ring, and its extremity made to press against the abdominal wall; the needle thrust through them, and having been threaded by a silver wire, withdrawn. The same manoeuvre on the opposite side of the ring (or in more places according to circumstances). To the lower ends of the wires were attached small pieces of the India rubber and secured by split shots, and to the upper similar but larger pieces. They were then drawn tightly together and clamped by split shots. A portion of integument was thus tucked into the ring.

At the end of eight days the wires were removed; a copious and thick purulent discharge issuing in their track, and considerable thickening of the surrounding tissues. The portions of the wire contained in the body were quite bright.

In about one week he was allowed to get up, and a light truss applied, the hernia being cured; impulse on coughing the same on both sides of abdomen, and no evidence to the finger of the former aperture.

W. P.—, *ret.* 55, the subject of ventral hernia. The chief point of remark in this case is that he was operated upon twenty years ago for a strangulated scrotal hernia, and which would seem to be radically cured by a portion of omentum blocking up the external ring.

Since this operation he has been the subject of a ventral hernia, which was operated upon by similar means to the latter case, and with a similar result.

2. *Mr. T. Spencer Wells' Case.*

V. F.—, *ret.* 29, cook at one of the clubs, came to me in August last with an oblique inguinal hernia on the left side. The canal was very short, and the ring just admitted my index finger. I performed Wutzer's operation on August 18th, removing the instrument on the 20th. He had not suffered in any way. The puncture was healed on the 28th, when he put on a belt truss. Thus he wore for two months, when the canal appearing to be firmly closed, I permitted him to leave it off. He went on well until last month, when he thought there was some bulging at the external ring, and on examination I found that it was not completely closed. He was very anxious to have his cure perfect, and as there was not room to pass up even a small cylinder, I determined to try the effect of a metallic seton. Accordingly, on January 3d I pushed up a fold of ser-tum to the ring, and passed a handled needle along my finger beneath the tendinous border of the ring, and along the canal for about an inch, then bringing it out through the parietes. I then passed one end of an iron wire through the eye in the projecting point of the needle, and by withdrawing it of course drew the wire—or seton—through the canal. I fastened each end over a wick of stocking cotton, and left the patient quiet in bed. No inflammatory action whatever was set up for three days, and I told him to get up and walk about, the seton being still in its place. This brought on a little swelling, but he went about for four days longer, when I removed the wire, as it appeared to be surrounded by hard exudation, and some sero-purulent discharge exuded from the points of puncture. He then required no truss, and the ring, when I saw him last week, appeared to be very firmly closed.

Aur. 105.—*On the treatment of Hernia by Electricity.* By Dr. CLEMENS.

(*Deutsche Klinik*, 39, 1858; and *Med.-Chir. Review*, Jan. 1859.)

This paper is the first of a series the author intends publishing upon the therapeutical application of electricity—a subject that has engaged his attention for some years past. He first employed this agent in the treatment of inguinal hernia, in 1850, and has frequently had recourse to it since then. The hernia being reduced, and the patient placed in the semi-recumbent position,

the ball of the conductor is carried as far into the hernial canal as possible, and the application of the electricity continued during five minutes, its power being increased day by day. After a few sittings the mouth of the ring becomes diminished in size, the finger is introduced with more difficulty, and the hernia will not descend so easily as heretofore. The electricity, too, exerts a very beneficial effect upon the peristaltic intestinal motions, augmenting and regulating these, and thus preventing the same relaxed portion of intestine from always lying opposite the hernial aperture. A state of obstinate constipation becomes changed for one of regular action, and many old disordered conditions of the abdominal cavity become relieved. When the hernia has been recently produced, no means act with so much certainty and rapidity; and a case is referred to of a young man who acquired double inguinal hernia during an effort to raise a heavy burden, and which was completely cured after twenty sittings, although these were not commenced until a week after the accident. Under its agency recent hernia is rapidly returned; but the author has not yet tried it in a case of complete incarceration. Among the twenty-seven cases in which it has been resorted to, none have manifested the slightest ill consequences. Dr. Clemens prefers static electricity to galvanism, and administers it by means of the Leyden phial.

Another application of electricity by the author consists in a galvanic hernia truss, for a description of the construction of which we must refer to his paper. By its agency a feeble but constant galvanic stream is kept applied to the ring, and large hernias soon become easily retained which before had resisted the largest trusses and the strongest springs. Of late, the author has constructed a pile of silver and copper coins, and the effects of so small an apparatus have often surprised him.

ART. 109.—*Lithotomy simplified.* By Dr. R. T. CORBETT, Surgeon to the Glasgow Royal Infirmary.

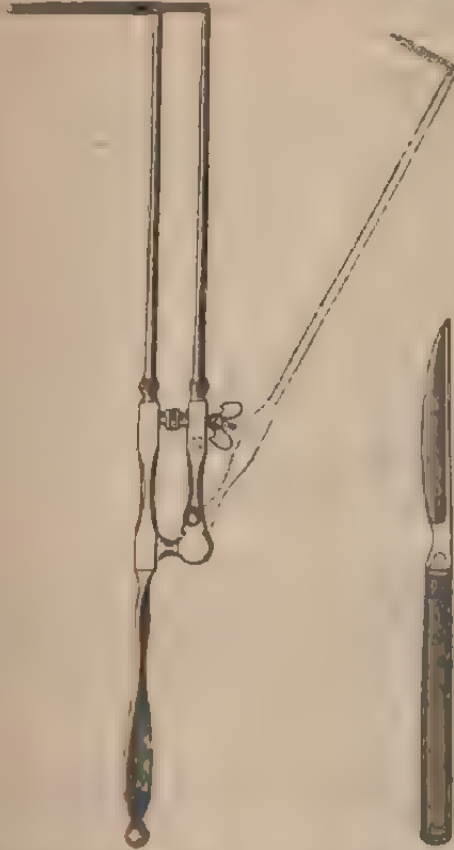
(*Medical Times and Gazette*, Dec. 11, 1858.)

Dr. Corbett's instrument is composed of two staffs. The inner staff is for introduction into the bladder, and it is furnished with a handle, by which it is kept steady when wished; the other is for application outside, and is attached to the first by a catch joint, which is fixed to a projection under and behind the handle, and is steadied by a quadrant-looking projection which passes through it. As this projection has a screw upon its upper and under surfaces, it permits the action of a nut-screw.

When the instrument is secured *in situ* for the operation, the perpendicular portions of the staffs are parallel to each other; and the short horizontal limb of the outer, which is pointed like a pen and grooved upon the left side, enters a similar groove upon the same side of the horizontal part of the inner staff, by means of which a direct groove or tract is opened into the bladder. The staffs of the instrument can be detached and united with the greatest ease and quickness.

"To make myself fully understood," says Dr. Corbett, "I shall suppose that a patient under the influence of chloroform has been placed upon the table for operation. I first introduce that part of the instrument which is the larger of the two pieces of which it is composed, and which is in reality a rectangular staff; having struck the instrument against the stone, to be satisfied that there is one, I then get the patient's feet bound to the thighs—which is much safer than binding them to the hands, as this latter practice draws the patient's body too much together, and materially lessens his capacity for breathing, thereby increasing the danger when chloroform is used. The nates now being brought to the edge of the table, the upper part of the pelvis elevated by a pillow placed below it, and the knees well separated, I take the handle of the staff in my right hand, introduce the forefinger of my left into the rectum, and feel for the horizontal part of the instrument; being satisfied that I feel the prostate between my finger and the portion of the staff just named. I then move the instrument slightly backward and forward until the angle rests immediately in front of the anus, of which position I am assured by my left

thumb resting upon it. The handle at this moment being perpendicular, I now desire my assistant to hold it steady, and I attach the outer portion of the instrument, which is effected in a moment by means of the spring catch. The quadrant-looking projection from the first staff passes through the outer one; and this contrivance, with the joint named, being what is called a double-joint, completely does away with lateral motion. The outer portion is then pressed



down with the right hand till its point touches the skin immediately in front of the anus, and in the middle line. The nut is now fitted on to the quadrant projection, when a single turn of the screw is sufficient to establish a line of communication with the bladder. The knife used with this instrument being held at a right angle to the outer staff, is then run along the groove into the bladder till its point is stopped, and a curved incision of an inch and a quarter, or inch and a half in length, is made to the left of the rectum, as the knife is being withdrawn. The operator then introduces the forefinger of his left hand into the bladder, and dilates the opening in the prostate if he thinks fit. The staffs having been withdrawn, the stone is removed by any instrument the operator may deem most suitable for the purpose.

"The knife I use is exactly three-eighths of an inch broad, perfectly straight in the back, which is ground to a blunt edge till half an inch from its point, where it is cutting, being fitted to pierce as well as cut. The blade, from its point to its shoulder, is equal to the length of the two grooves when the instru-

ment is screwed up; this shows how far the knife should enter; but it is not essential that the blade should be of any particular length, as the knife is thrust home until its point is stopped by the closed extremity of the groove. In front of the shoulder of the blade there is a depression which is rounded off, in which the forefinger rests while the knife is being used. I would recommend the finger in the rectum to be applied to the horizontal portion of the staff while the knife is being thrust into the bladder, as it is unnecessary to press the rectum away from the edges of the knife, this gut never having been known to be cut by this method of operating.

"The points in which I think this instrument possesses advantages over Dr. Buchanan's are these:—

"1st. That you transfix the very commencement of the prostate, where the membranous portion of the urethra ends, by which you render it impossible for the angle of the staff to shift from the position in which it has been placed, thereby rendering yourself independent afterwards of your assistant; and it follows from the instrument being fixed in the place of election, that you can with far greater certainty cut the gland in the place wanted, and with the greatest exactness, to any extent desired.

"2d. A deep groove leading from the outside into the bladder, that organ can be cut into with the greatest confidence, ease, and certainty; whereas with the rectangular staff, in fat subjects, or when from any cause the perineum is deep, there is sometimes great difficulty in finding the groove, and even in young subjects I have seen much time lost, and worse than that, before the knife was fairly introduced.

"In using the rectangular staff, when an operator gets his knife entered at once into the groove, I am almost disposed to think that either chance or good luck has had something to do with the matter; and if I should ever operate again by this staff in an adult, I will most certainly make a preliminary incision round the left side of the anus, find the angle of the staff, and then enter the knife in the groove; but I trust the instrument I have now attempted to explain will obviate this necessity.

"I have operated frequently upon the dead body by means of this instrument, but have used it only once upon the living; this was three days ago, on the 9th of the current month, at 9 o'clock A. M., in the operating theatre of the Glasgow Royal Infirmary, in presence of many practitioners and students. The subject of this operation was a lad, æt. 17, who had been afflicted with symptoms of calculus from his infancy. The sufferings he experienced from that early period had affected his general health to a considerable extent, and he looked like a boy of 14. Slight exertion produced great pain, and there was considerable mucous deposit from his urine.

"The operation was performed with the greatest ease, so far as the instrument and the use of the knife were concerned, and a stone measuring $2\frac{1}{2}$ inches in length, by $1\frac{1}{2}$ in breadth, and weighing two ounces three drachms and a half, was extracted by means of the forceps, which caught it at once. As the calculus was, however, very large, and the forceps used relatively small, some exertion was necessary before it could be brought through the opening in the bladder, although the prostate was undoubtedly cut and dilated previously as far as seemed safe. The boy lost little blood from the operation, the urine afterwards came freely away by the wound, the edges of which continued soft and free from all inflammatory swelling. He suffered as little pain as is generally experienced after this operation, but his pulse was weak, and he could not be prevailed upon to take nourishment; and he continued in this state till his death, which took place forty-four hours after the operation, the patient having had two healthy alvine evacuations about two hours before his decease. Permission to inspect the body was not granted, although urgently requested; but a young gentleman who was officiating *pro tempore* as my clerk, was allowed to make a small cut into the hypogastric region, when he saw that the prostate had been cut as nicely as possible, but the bladder was very much thickened, the result, no doubt, of chronic inflammatory action; there was no ecchymosis of its mucous surface, but the serous covering was reddened, and there was some effusion into the peritoneal cavity; but as a thorough inspection was not

made, it remains doubtful what was the immediate cause of death. If I ventured upon an opinion, I would say that subacute peritonitis, proceeding from a diseased bladder, was the cause. It may be remarked by some, that the principle of this operation is nothing new; in other words, that means of establishing a route for cutting-instruments into the bladder have been tried by several surgeons in times past—this I have found out, since Mr. W. B. Hilliard, of Glasgow, made this instrument for me, now two years ago; but at the present moment I am only acquainted with two instruments so constructed, viz., those which bear the names of Sir James Earl and M. Guérin."

ART. 110.—*Statistical analysis of 186 Lithotomy operations.*

By Mr. JONATHAN HUTCHINSON.

(*Medical Times and Gazette*, Jan. 8, 1869.)

In the subjoined analysis, all the cases of lithotomy are included which occurred between January, 1854, and July, 1857, at the following Hospitals, viz. —

University College, King's College, St. Bartholomew's, St. George's, Guy's, St. Thomas's, the London, the Middlesex, the Westminster, Charing-cross, St. Mary's, the Metropolitan Free, the Marylebone, the Hospital for Sick Children, and the "Dreadnaught" Seamen's Hospital.

During the three years and a-half over which these statistical reports extended, 186 cases of lithotomy are recorded as occurring in the different metropolitan hospitals. It thus appears that an average of 40 patients a year are operated on for stone in the bladder, or, in other terms, not quite one a week. This number, seeing that the list comprises thirteen hospitals, several of them large ones, is certainly smaller than might have been expected. The modern practice of crushing has no doubt rendered this number somewhat smaller than it would otherwise have been; but that it has not greatly diminished it, we shall have to show in a subsequent analysis of the lithotomy operations performed during the same period.

Of the 186 cases, 146 resulted in recovery, and 40 ended in death. Of the whole number, 137 were under the age of 20, and of these, 123 recovered and only 14 died; while of the 49 in which the patients were adults, we find but 23 recovered, and no fewer than 26 died. These figures show in a very strong light the influence of the age of the patient upon the prospects of a lithotomy operation. We shall now proceed to exhibit the extent of this influence in greater detail, and then to examine as to the several causes of the fatality of this operation, and their relative importance.

Influence of the Patient's Age on the prospect of Recovery.

In the subjoined table the cases have been classified according to the patient's age:—

Age.	N.	Recov- ered.	Dead.	Per cent. Mortality.	
1	1	1	0	0.0	
2	5	5	1	12.5	1 in 8
3	24	20	4	16.6	
4	15	15	0	0.0	
5 to 9	43	40	3	7.0	1 in 14
10 to 14	15	15	0	0.0	
15 to 19	21	15	6	28.5	1 in 3.5
20 to 24	8	7	1	12.5	1 in 8
25 to 29	8	2	1	62.5	1 in 3
30 to 34	3	1	2	66.6	1 in 3
35 to 39	2	1	1	50.0	1 in 2
40 to 44	0	0	0	0.0	
45 to 49	1	1	2	66.6	2 in 3
50 to 54	1	0	2	66.6	1 in 3
55 to 59	6	4	2	33.3	1 in 3
60 to 64	1	1	5	83.3	2 in 3
65 to 69	1	0	4	80.0	4 in 5
70 to 74	1	0	1	100.0	
75 to 79	1	0	1	100.0	
Total	157	147	40		

Thus it would appear that between the ages of 5 and 10 is the period in which the lowest death-rate after lithotomy prevails. Of 15 operations performed on patients between these ages, all resulted in recovery. If we group together all between 5 and 19 we shall have 61 cases, out of which only 1 in 21 ended fatally. Children under the age of 5 appear to bear the operation much better than a little older. Since of 43 operations 1 case in 9 ended in death. If we pass by the fact that no death appears to have occurred out of the 7 cases between the ages of 15 and 20, as probably on account of the smallness of the number, a coincidence, we may allege that amongst the adults the rate of mortality rises with the age of the patient. Of those under 10 only 1 death in 14 cases occurred; in those between 10 and 25 the rate has risen to 1 in 3.5; in those between 25 and 45 it has reached 1 in 2; between 45 and 60 it is actually more than half; while subsequent to the age of 60 it attains the frightful proportion of 2 in every 3. There can be no doubt that this appalling mortality in patients of advanced age is in part produced by the fact that of late years the best subjects have been treated by lithotomy, and that, in the hands of many surgeons, only those patients not considered to be in sufficiently good health to bear the latter have been submitted to lithotomy. Still we regret to know that this circumstance has but a very limited application, since lithotomy has been practiced to a very small extent.

The explanation of the comparative freedom from risk in young patients is to be found in the fact that disease of the kidneys is a very common concomitant of general debility in growing persons, and a very rare one in children. The latter is not to be allowed, excluding the cause of death at the several ages, will show that of all the various evil influences, renal disease is by far the most serious. In the list of 15, however, in which death was referable to lithotomy, only 1 case in which the patients were under 20, and only 1 in which the patient was under 10. On the contrary, of the four who died of tubercle pneumonia, all were under 40, and 3 under 30. Peritonitis, hemorrhage, and shock of the operation, rank as the chief causes of death in childhood.

Much importance has been attached by some writers to the weight of the stone as a means by which to estimate the risk incurred. The heavier the stone the greater the danger. To Mr. Croese, of Norwich, we owe a valuable collection of data on this point. Quoting Mr. Croese's table, Mr. Condon, in his work on diseases of the bladder, actually goes so far as to assert—"The

chance which a patient has for recovery can, therefore, be calculated beforehand, and, independent of every other consideration, from the ascertained dimensions and weight of the stone." The statistical fallacy here involved is transparent. Of course children have, as a general rule, much smaller calculi than adults; and, as we have seen above, they are by very far the best subjects for lithotomy. The cause of the freedom from risk in children is not, however, to be found in the fact that their calculi are lighter, which is little more than a coincidence, but in their usual freedom from renal disease. Of course no one will deny that the large size of a stone is a circumstance of some prejudice to a patient's prospects. A surgeon would, however, commit an absurd error if he should imagine that a boy of ten, from whom he had removed a mulberry calculus weighing several ounces, had only an eighth part of the chance of recovery which was possessed by a man of sixty from whom a phosphatic one of not as many drachms in weight had been removed. In all probability the reverse estimate would be nearer the truth. The fallacy to which we have referred, viz., that difference in weight of the stone is, as a rule, coincident with difference in age of patient, appears to us to make any statistical calculations of weights quite valueless for purposes of prognosis. All that can be said is that of patients of equal age and similar degree of health, those who have large calculi have a somewhat worse chance of recovery than the others, and even this rule must be allowed to receive constant modifications, from consideration of the composition of the stone in each individual case. Leaving what we have to adduce, as to the influence of the previous health of the patient upon his chances of recovery after lithotomy, to another part of the report, we will now pass to—

Causes of death after lithotomy.—In the following list we have endeavored to classify the cases according to the accident or lesion which appeared to have exerted the most efficient influence in bringing about the fatal event. In many cases, of course, more than one had been at work at the same time. Thus, some cases in which the main lesion appeared to be disease of the kidneys, had also inflammation of the bladder and of the pelvic cellular tissue; while in others, which died ultimately of some distinct visceral disease, hemorrhage occurring during or after the operation, might be reasonably supposed to have diminished the patient's chance and predisposed him to the attack. The classification is therefore only an approximation to the truth, and must be so considered. Proceeding on this plan, we find that of the forty cases ending fatally, death was referred to

Renal disease	in 14 instances.
Hemorrhage	" 4 "
Pyæmia	" 4 "
Peritonitis	" 4 "
Shock of operation	" 2 "
Extravasation of urine	" 2 "
Abscesses about the bladder	" 2 "
Wound of the fundus of the bladder by the knife	" 2 "
Exhaustion	" 1 "
Convulsions	" 1 "
Cystitis	" 1 "
Bronchitis	" 1 "

In the remaining two cases we do not possess sufficient detail to allow of our assigning them to any class without risk of error.

ART. III.—*New Method of Curing Hydrocele.* By Professor SIMPSON.

(*Edinburgh Medical Journal*, Dec. 1828.)

Many methods have been proposed of treating hydrocele surgically; and at the present time, tapping, and medicated injections into the sac, form the means generally resorted to. The new method which Dr. Simpson suggests, is founded upon the fact that iron and other metallic wires, when placed in

contact with living tissues, do not, as a general law, excite inflammation to a higher stage than that of adhesion, or the effusion of coagulable lymph. Dr. Rothmund, of Munich, performed the radical cure of hernia by exciting adhesive inflammation in the returned hernial sac, passing, for this purpose, and leaving for eight days, a metallic needle traversing the peritoneum; and he has not, it is averred, lost a single patient out of 1000 operated on. If metals in serous sacs created a higher stage of inflammation than the adhesive, such a fortunate result as this would not have been attained. Dr. Simpson thinks that metallic wires passed through the sac of a hydrocele would act in two ways: first, they would drain off the fluid; and, secondly, they would subsequently, by their presence, form the surest means of exciting the subsequent amount of adhesive inflammation that was required for the cure of the disease. Dr. Young has, in one of his patients, afforded him an opportunity of putting this idea to the test. The slender wire or metallic seton which was used in this case was passed through the sac by first traversing it from below upwards with a long-handled surgical needle, such as is used in transfixing and tying hemorrhoids, threading the eye of the needle, after it was projected through the scrotum above, with three or four slender iron threads, pulling the needle then backwards through the sac and out, and thus leaving the metallic seton in its place. The liquid drained off in an hour or two; adhesive inflammation set in, and progressed for two days, when it began to subside. The wires were removed on the third day; and the cure has remained apparently quite complete, with the vaginal sac firm and consolidated. Dr. Young has published the case at length (*vide* next article). This method of treating hydrocele is, Dr. Simpson holds, much simpler than tapping and injecting; not by any means so painful to the patients; less likely to produce a suppurative or dangerous amount of inflammation; and, perhaps, experience will show that it is surer and more certain in its results.

ART. 112.—*On the Treatment of Hydrocele by the Iron-wire Seton.*

By Dr. JAMES YOUNG.

(*Med. Times and Gaz.*, Feb. 26, 1859.)

The treatment adopted in the two following cases is that referred to in the previous article. It is evidently one of great promise.

CASE 1.—About the middle or end of June last, J. L., æt. 40, received while in bed a kick upon the testes, from one of his children who was sleeping with him. The blow occasioned no pain at the time, but when he rose in the morning, he felt it somewhat painful, and the left testicle swollen, and during the succeeding eight weeks it continued to enlarge, without being accompanied with any great degree of pain.

About the end of August the patient describes the scrotum as getting "soft and doughy," and increasing gradually in size, until the beginning of October, when it measured five or six inches in depth.

On October 1st, the patient placed himself under my care, when, after examination, I recommended an operation, which was eventually performed on the 26th of that month by the insertion of an iron-wire seton.

This new treatment was adopted in consequence of Professor Simpson having become acquainted with the case.

We resolved to give this new method of curing hydrocele a fair trial, and accordingly the operation was performed by passing a large curved needle through the scrotum and tunica vaginalis, for about two inches; five fine iron wires were passed carefully through the eye of the needle, and then it was withdrawn, leaving ten threads as a metallic seton, which were allowed to remain, as in the case of a common seton. The fluid began to flow immediately, and continued to ooze out for some time after, soaking several towels, until the whole escaped. The patient complained of very little pain either during the operation or after it.

On October 27th the inflammation began (a little fluid continued to trickle), and on the 28th the swelling was considerable.

As the action was sufficiently powerful on the 29th, the seton was removed

with little pain to the patient. We observed on removing the wire, a considerable quantity of lymph on it, the result of the inflammation. The swelling began to fall every day after the removal of the seton, and the patient rose on November 1st.

At the present date, February 18th, 1859, I may state that he continues quite well, without the least return of the hydrocele, the scrotum having regained its usual healthy size.

This, so far as I am aware, is the first operation of the kind that has been performed in Edinburgh, and reflects the greatest credit on Professor Simpson, who proposed the operation. The complete success which attended this case, encouraged me to make further inquiries, and I have since operated on two other patients with perfect success; but I will merely mention one more here, as the operation is conducted on the same principles in every case.

CASE 2. R. W., *et. 17*, by trade a blacksmith, states that, about two years ago, he observed his testicle begin to swell, and continue to enlarge from below upwards.

In August, 1858, the scrotum was about the size of two large turkey eggs. At that time he had been treated with blisters, &c., but without any permanent benefit; and at the beginning of this year he was advised to come to Edinburgh, and undergo some operation to obtain relief. I saw him for the first time on January 5th, 1859, and proposed this new operation to him.

In this case the patient was not aware of having received any external injury.

On January 6th the operation was performed, along with Professor Simpson, in a similar way as described in the previous case, except that only four wires were used instead of five as before.

The fluid escaped rapidly, and in large quantity. The patient complained of very little pain, either during the operation, or the first twenty-four hours. On January 7th the scrotum was much reduced in size, but on the 8th the inflammatory action commenced, and on the 9th the scrotum was considerably larger, and, as the patient was complaining of great pain, we thought it advisable to remove the seton. On the 10th and 11th there was a slight discharge of pus from the upper wound, which was treated by the application of a poultice, and the lead and opium lotion. On January 12th the swelling began to fall and the patient got rapidly well, and was soon able to go home.

ART. 113.—*Case of Malignant Disease affecting a testicle which had been retained within the abdominal cavity.* By Dr. GEORGE JOHNSON, Physician to King's College Hospital.

(*Proc. of the Roy. Med. and Chir. Soc., Jan. 11, 1859.*)

CASE.—The subject of this history, C. D.—, aged twenty-seven, was a well-developed, muscular man, of active habits, residing at Cambridge as a private tutor. The disease which ultimately caused death, appears to have commenced about the month of September, 1857. At that time, while out shooting, an uneasiness low down on the right side of the belly, which had been felt for a short time before, grew into such intolerable agony that he had "to knock up" for two hours. The pain then went off, and he finished the day as of old. From that time the pain was more or less constant and severe, and on several occasions greatly aggravated by active exercise. Dr. Johnson was first consulted by letter in April, 1858. The description of the pain, and its situation in the course of the right ureter, suggested the notion that a calculus might be impacted in the ureter. Some questions relating to the effect of the pain upon the testicle, elicited the fact that the right testicle had not descended from the abdomen. A careful examination on the 17th of April failed to discover any tumor in the right inguinal or iliac region. The patient's general health and nutrition were at this time but little affected. The urine was of high density, and deposited lithates and oxalates, but contained no other abnormal products. The pain continued, and the patient began to lose flesh and strength. It now occurred to Dr. Johnson, as a probable explanation of the symptoms, that the retained right testicle had become

the seat of malignant disease. The patient's mother had died of cancer of the stomach. On the 12th of June there was a consultation with Dr. Bright. At that time there was decided evidence of a tumor or deposit in the abdomen, above Poupart's ligament, on the right side. The tumor rapidly increased, until it extended much beyond the median line of the abdomen, above the umbilicus, and even to the epigastrium. The patient meanwhile became much emaciated, and died exhausted on the 7th of July. On post-mortem examination, the right testicle, situated in the abdomen, was found to be the seat of medullary disease, forming a tumor weighing sixteen pounds, even after the escape of about four pints of grumous fluid from some large cysts which had become developed in it. The lymphatic glands in the abdomen were free from disease.

ART. 114.—*On Injections in Gonorrhœa.* By Professor SIGMUND.

(*Schmidt's Jahrbuch*, Bd. xcv., p. 49; and *Medical Times and Gazette*, Nov. 6, 1853.)

Professor Sigmund, of Vienna, as the result of his extensive observation in this class of diseases, is decidedly in favor of the employment of injections in the treatment of gonorrhœa. He believes that those who have derived no benefit from their use, or who have observed mischievous consequences from this, have, in the great majority of cases, employed them improperly. He has tried injections with balsam of copaiba, and with chloroform, but has given them up as unpractical, and those made with the patient's own urine, while taking balsam copaiba, were found to be as inert as water. From among a large number of substances tried, he confines himself now almost entirely to sulphate and acetate of zinc or lead, alum, and tannin; and of these he prefers the sulphate of zinc to all others, because the great majority of patients are cured by it, it acts mildly, neither soiling the linen nor changing the color of the urine, and it is very cheap.

For injections to succeed, they must be used at the proper time, in a suitable dose and manner, and they must be continued sufficiently long. The period for their employment has arrived as soon as the inflammation of the mucous membrane of the urethra has become subdued; but they should not be used as long as there is present considerable swelling, great, or even slight, if continuous, pain, spasms, or frequent calls to pass urine. The dose of the material should be small, as five grains to the ounce of extract of lead, one quarter of a grain of nitrate of silver, one grain of sulphate or acetate of zinc, &c. It is seldom necessary to increase the original dose. The addition of anodynes, as opium, hyoscyamus, &c., has no advantageous effect. We should carefully teach the patient how to use the injection; and a small tin syringe, with a conical tube, is to be preferred. It should hold at least two drachms. The patient should be placed in the upright position, and should pass urine prior to the injection being thrown in. The tube must be so passed into the urethra, that no fluid can flow out between the canal and the tube. The fluid is now to be slowly thrown in, and then the mouth of the urethra is to be kept closed by two fingers, so that nothing can pass out during two or three minutes. Two injections are to be thrown in, one after the other, and they are to be repeated three or four times daily. The injections should not be thrown in just before going to sleep, as they then sometimes give rise to seminal discharges. They must be persevered in for eight or ten days, after all traces of diseased secretion have ceased to be visible, even in the morning. The average time required will be from twenty-one to twenty-eight days. Internal means may also, if desired, be employed, and balsamic medicines in many cases hasten the cure.

Dr. Sigmund rarely has recourse to caustic injections, as the nitrate of silver, sulphate of copper, chloride of zinc, &c., because generally the experiment is dangerous. He limits their use to simple, uncomplicated gleet, which has resisted the usual means, as also to recent gonorrhœa without inflammation occurring to persons who have already employed the treatment with advantage.

(C) CONCERNING THE INFERIOR EXTREMITIES.

ART. 115.—*On Compression of the Artery in inflammation of the limbs.*
By Professor VANZETTI, of Padua.

L'Union Méd., Nov. 58 and 115, 1858; and *Medical Times and Gazette*, March 12, 1858.

"Professor Vanzetti has resorted to manual compression in the case of inflammation of the limbs, whenever the artery has been accessible, and such success has attended its application to the femoral, brachial, and subclavian arteries in phlegmon and arthritis, that it now forms the ordinary means of treating such cases at the Padua Clinic whenever it is practicable. Employed promptly it soon may arrest the progress of the inflammation, more time being required when the process has been set up during some period. In the case of severe or much advanced inflammation, although not of itself competent to effect a cure, it is the most powerful adjuvatory means. In the face of the great advantages derivable from this means we must not be deterred by apparent difficulties in the execution. Persons can be generally got to make the compression, or the patient may be taught to do this; and, in a case of great urgency, the surgeon himself should perform it for two or three hours. In general, compression need only be kept up for eight or ten minutes, and, after resting, again resumed. The Professor relates two cases as remarkable examples of the efficacy of this treatment; one being an instance of a bad phlegmonous erysipelas of the arm, treated by compression of the subclavian; and the other a case of acute arthritis of the wrist, treated by compression of the brachial."

ART. 116.—*Excision of the entire Fibula.* By Dr. A. REEVES JACKSON.

(*Amer. Jour. of Med. Sciences*, Oct. 1856.)

CASE.—Mrs. R., *æt.* 37, the wife of a farmer, and the mother of four children, noticed some time during the month of May, 1849, a painless swelling of the outer side of the calf of the right leg about four or five inches below the knee-joint. The enlargement slowly increased, and extended itself upwards and downwards towards the knee and ankle-joints. The right foot and lower part of the leg became cedematous, and she walked with a slight limp, which she attributed to weakness of the part. Her general health continued unimpaired. She attended to her ordinary household duties until the early part of September, when, in stepping down stairs, she felt "something give way," and fell to the bottom. She was now unable to walk, and for the first time applied for medical assistance.

Dr. G. A. Kaski, of Bartonsville, Pa., was sent for, who, after attending the case a few days, and ascertaining its unusual character, requested my attendance in consultation.

Accordingly, we saw her together on the 19th September. On examination, we found the leg much swollen, painful on pressure, and the foot considerably erected. There seemed to be evident fracture of the fibula, although not the least crepitus could be produced. The leg was lightly dressed with splints and bandages, and cooling applications ordered to be applied.

I saw nothing more of the case for nearly three months, when I was again requested by Dr. Kaski to see her.

At this time (Dec. 10th) the leg was much more enlarged, and the patient complained more of pain. The splints and bandages had been dispensed with for several weeks, owing to the irritation of the integuments which they produced. The eversion of the foot was still more marked than before. The general condition of the patient was indeed lamentable. She was greatly emaciated, although she did not present the appearance of a person suffering from malignant disease. Extensive ulcerations had occurred over the hips and sacrum, resulting from her long confinement to bed, and the discharges from which had seriously drained her system. There was much cedema of

the parts about the ankle, foot, and on the fibular aspect of the leg. No fluctuation could be detected at any point.

Her condition was now such as to render it clear that something must soon be done for her relief, or that she would sink from exhaustion. Amputation of the limb had already been suggested to her, but to this measure the patient as well as her friends firmly objected. Excision of the affected bone was now proposed, and, the nature of the operation having been explained to her, she consented to have it done. It was accordingly decided to excise the bone on the following Monday. In the mean time, she was put upon a course of tonic treatment, and the use of the most nourishing diet enjoined upon her.

Operation.—The operation was performed December 22, 1849, in the presence and with the assistance of Drs. Kaski and Foss, and Messrs. Köhler and Stuck.

The patient having been put fully under the influence of chloroform, the leg was partly flexed, and a longitudinal incision made, commencing about a half inch above, and an inch in front of the head of the fibula, and extended downward to the external malleolus, dividing the skin and peronei muscles. A second incision, starting from the same point as the first, was made transversely, and carried directly backwards about two inches. The flap thus formed was rapidly dissected off from the bone (or rather what was formerly bone) until the upper four inches were fully exposed. I now made an attempt to detach the head of the bone from its tibial articulation but found it a very difficult proceeding. However, the substance representing the fibula, flexible and much thickened, was finally separated by passing a narrow-bladed bistoury between it and the tibia, the edges of the wound being held widely apart, at the same time, by an assistant, with blunt hooks. Great care was necessary at this stage of the proceedings in order to avoid wounding the anterior tibial nerve, which was here seen passing down.

The upper portion, being now detached, was drawn outwards and made use of as a lever to aid in separating the remainder. Seizing it with the left hand for this purpose, the fibres of the peroneus longus and the interosseous ligament were divided, the knife being kept close to the bone. In this manner, it was also separated from its connections with the soleus and the flexor longus pollicis pedis. Proceeding downwards, I found the attachments of the muscles and the interosseous ligament to the bone were so slight about its middle third, that they were readily separated by the handle of the knife. At one point there was scarcely any vestige of bone remaining.

The most difficult part of the operation consisted in removing the lower end of the bone from its attachment to the fasciculi of the external lateral ligament of the ankle joint and the several short ligamentous attachments to the tibia. It was finally accomplished, however, by making a third incision, perpendicular to the first, at its lower end, about an inch and a half long, and dissecting the flaps carefully back, then by pulling the diseased mass strongly outward, sufficient space was obtained for dividing the connections with a slender knife. Care was taken to avoid injuring the small slip of synovial membrane which is here sent up between the tibia and fibula from the ankle joint.

The tibia and astragalus were both found to be unaffected by disease.

There was very little arterial hemorrhage throughout the operation. The peroneal artery, which was the only one of great size that was really in danger, was carefully avulsed. Some of the anastomosing branches of the anterior and posterior peroneal arteries were cut, but pressure being applied to them, the bleeding soon ceased. The venous and capillary bleeding was troublesome for a time, but finally ceased under the application of pressure and the use of cold water.

Dressing and progress of cure.—The edges of the wound were brought together and retained by several points of interrupted suture and adhesive straps, the whole being covered lightly with a roller bandage. A well padded splint, four inches wide, and extending for a short distance above the knee joint to four or five inches below the foot, was placed along the tibial aspect of the limb, and confined by a few turns of the roller above the knee and to the foot, in such a manner as to draw the sole of the foot more nearly to its

natural position. Cold-water dressing was then ordered, to be kept constantly applied to the wound. A full dose of morphia was given at bedtime.

The sutures were removed on the third day, at which time union was found to have occurred throughout the greater part of the wound. The patient was kept upon the use of tonics, and a full diet allowed. The subsequent progress of the case was entirely satisfactory; and at the end of three weeks the patient was able to sit upon a chair with the foot and leg resting upon an elevated cushion. In two and a half months, she was able to walk with a cane, by the aid of a stout gaiter-shoe, to the sole of which was attached a steel plate three-fourths of an inch wide and one-eighth of an inch thick, which, being applied to the outer side of the limb, extended upwards to a point opposite the tibio-talar articulation, and the upper end, being well-padded, was secured by a broad strip of ferretting passed around the leg below the knee. This apparatus was used for about two years, when she at length threw it aside, and ever since has merely used a cane.

Functions of the leg and foot.—She walks with a slight limp, bearing the weight of the body upon the inner side of the foot, the sole of which is considerably everted. Owing to the detachment of the biceps muscle, she has no power to evert the leg when in a semi-flexed position. The soleus, however, continues to act from its tibial attachment. There is a tendency in the foot to be partially flexed from the detachment of the peroneus longus and peroneus brevis, these muscles being extensors of the foot, and antagonistic to the tibialis anticus and peroneus tertius, which flex the foot. The motion at the ankle-joint is somewhat impaired, owing, perhaps, to the long-continued eversion of the foot and the consequent side-pressure on the joint.

Appearance and pathological condition of the bone.—It is thickened throughout its entire extent, but most so about the middle and upper extremity. At the largest point it measures five and three-quarter inches in circumference. It is of yellowish-white color, in consistence rather softer than cartilage, and thickly studded with osseous spicules imbedded in a dense, elastic, fibrous tissue. Its external surface is rough and irregular, and presents numerous small cavities of varying size. The periosteum is entirely removed from the posterior surface of the upper half of the bone, and, although still present on some parts of the anterior surface, it is much thickened and softened. At one point there is no bone whatever for a distance of an inch and a half, the upper and lower extremities being held together merely by a few shreds of periosteum. The lower part of the bone is tolerably firm, enlarged to about twice its normal size, and the periosteal investment unaltered. The interior of the bone, however, is softened, and degeneration of the tissue considerably advanced.

(D) CONCERNING THE UPPER EXTREMITIES.

ART. 117.—On the Suspension of the Radial Pulse in forced extension of the Arm. By Dr. Av. VERNEUIL.

(*Journal de Physiologie*, July, 1858.)

Dr. Av. Verneuil has ascertained that the radial pulse is suspended whenever the arm is placed in a position of *forced extension*, and that this suspension is due to the compression of the brachial artery at the bend of the elbow by the agonistic expansion of the biceps and brachialis anticus. He has ascertained, indeed, that the same result is brought about by forcible extension of the arm, as is known to be brought about by forcible flexion of the arm. The practical suggestions arising out of this fact are obvious.

ART. 118.—Dislocation at the Radio-carpal Articulation.

By D. I. DUBOIS, Surgeon R. N., H. M. S. Vulture, Gibraltar.

(*Medical Times and Gazette*, Nov. 6, 1858.)

CASE.—J. C—, æt. 16, a sailor-boy of the second class, while employed, on July 29th, in making fast some washed clothes in the rigging, stood, contrary

to orders, upon the clothes-line, which immediately gave way beneath him. He fell to the deck, a height of about twelve feet, and came partly upon his side, with the left hand and forearm beneath him: two handspikes, belonging to an adjoining gun, happened to be lying on the deck at the moment of the accident, and he dropped across them.

When raised, the forearm was in a semiflexed and semiprone position; the hand was thrown backwards, and twisted as if on its axis; a depression existed on the radial side of the dorsal aspect of the wrist, and a tumor on the palmar, formed by the dislocated end of the radius, the outline of which could be distinctly felt in its new position. Knowing how generally force applied at the wrist is followed by fracture of the radius about its lower third (recognized in Dublin as Colles' fracture), and by a second variety (Dupuytren's) when fractured into the joint—the limb was submitted in this case to a very decided manipulation, before attempting reduction, in search of crepitus, or abnormal mobility; and on reducing the luxation, which was easily done, the same manœuvres were again employed without discovering any solution of continuity.

This injury is so seldom seen, that its occurrence has been almost doubted by some high foreign authorities, under the belief that the radius must fracture at its carpal extremity rather than dislocate. However, although this be the general rule, it has its exceptions, rare though they be. The result of violence applied to the wrist must naturally be influenced by the age and condition of the osseous and ligamentous structures, for the old and earthy bone—retained by its tough ligaments—would fracture, where a younger one, abounding in animal matter, and confined by less dense and more elastic fibrous tissues, would be saved by its flexibility.

Naval surgeons have one great advantage in all these casualties. The patient is seen without loss of time at the moment of injury—while laboring under faintness or shock, while all is relaxed, and long before effusion into the surrounding parts can mask the true nature of the accident, or oppose its reduction.

Dr. Fulton, of H. M. S. Centaur, has had a similar accident recently under his care; one of the officers having been thrown from his horse while riding at Malta.

PART III.

MIDWIFERY, AND DISEASES OF WOMEN AND CHILDREN.

(A) CONCERNING PREGNANCY AND PARTURITION.

ART. 119 — *On the liability to Abortion*
By Dr. CLAY, Physician to St. Mary's Hospital, Manchester.

(*Glasgow Medical Journal*, Jan. 1859.)

Dr. CLAY's inquiry includes 790 females who passed under his notice in hospital and private practice. The combined age of these 790 females is 40040 years, giving an average of 50½ years to each, or rather more. Of these 790 females, 430 or considerably more than one half, have had living children, premature births, and abortions; 350, or considerably less than one half, have never aborted, but always had full-period living children; 10, or a 79th part of the whole of these, had neither dead nor living children, nor yet abortions. Of the whole 790 females, not one had abortions alone, viz., without having had living children at some time or other. The entire number of pregnancies whatever the result of the 790 females was 6970, or about 8½ to each female. Of the 6970 pregnancies, 5970 were living children, and 1000 abortions. The number of living children to each female will be about 7½, and the number of abortions to each about 1¼. The greatest number of pregnancies in any one female was 30. The greatest number of abortions 28. The last two numbers were of the same female; that is, 2 living children and 28 abortions. This female had been married twice. By her first husband she had only 2 living children; by the second husband she had 28 abortions, and no living children. Pursuing the subject as to the number of pregnancies—

1 had 30 pregnancies.	70 had 9 pregnancies.
50 " 15 "	80 " 8 "
20 " 14 "	60 " 7 "
40 " 13 "	50 " 6 "
40 " 12 "	50 " 5 "
70 " 11 "	50 " 4 "
130 " 10 "	The rest had 3, 2, 1, or 0 each.

It will be observed in this table that the greatest number of females had each 10 pregnancies of all results; and that those of 11 and 9 pregnancies each were the next in amount.

The entire number of abortions, or children born dead, was 1000, or about 1¼ to each individual. Of these—

1 female had 28 abortions.	30 females had 3 abortions.
60 " 6 "	80 " 2 "
10 " 5 "	272 " 1 "
10 " 4 "	

Showing by far the largest majority in those females with only one abortion; and next to those the females who had two each.

Dividing the child-bearing period into two epochs—the first from puberty to

thirty years of age, and the second from the age of thirty to the cessation of menstruation, the following numbers in respect to abortion were obtained:—

Before thirty years of age	460 abortions.
After thirty years of age	540 "

So that abortion occurs most frequently after thirty years of age, or in the latter half of the child-bearing period.

In the above statement it is remarkable that no case occurs where a female has passed through life and been capable of impregnation, but has had living children at some period of the term, though subject to frequent abortions, and there were only 10 who were not subject to impregnation at all, and therefore had neither living nor dead children.

In corroboration of Dr. Whitehead's views, Dr. Clay says, that in so far as his investigations have progressed, pregnancies are rare occurrences during the last three or four years of menstrual life. Out of 790 there were only—

1 at the age of 52	4 at the age of 49
2 at the age of 50	5 at the age of 48

Indeed, from forty-one or forty-two years of age to the period of complete cessation, impregnation is far from being a common occurrence. The capacity of child-bearing is, in fact, on the decline for the last six years of the menstrual period.

The number of impregnations to each female, as deduced from the above tables, is about 8½. Dr. Whitehead's investigations make it about 12 to each. Dr. Clay does not know how this discrepancy arises, whether from the yet small extent of these inquiries, and from their being confined to females who have passed through the full term of child-bearing life; the average age of Dr. Whitehead's 2000 cases being but *thirty* years, whilst that of Dr. Clay's 790 cases was *fifty and a half* years.

DR. CLAY.		DR. WHITEHEAD.	
Pregnancies of all results	84	Pregnancies of all results	12
Living children	74	Living children	6.37
Abortions	14	Abortions	1.63

Lastly, it is to be observed that the above tables show that more than one half the females under inquiry, or 430, are subject to abortion. Of 790, Dr. Whitehead makes ~~abortion~~ 37 per cent.; the tables here given show more than 50 per cent. These differences may, however, be easily accounted for, when it is considered that abortions are most frequent in the latter half period of menstruation, and the average age of Dr. Clay's tables being *fifty and a half* years, whilst that of Dr. Whitehead's is only *thirty*.

In conclusion, Dr. Whitehead believes that the frequency of abortion rests with the third, fourth, and subsequent pregnancies, whilst Dr. Clay's tables show that abortions are most frequent in the latter half of menstrual life, which views are in some measure analogous.

ART. 120.—Beneficial effects of Pepsine in the obstinate Vomiting of Pregnancy.
By Dr. LE GROS.

(*Bull. Gén. de Thérapeutique*, Feb. 15, 1858; and *Med.-Chir. Review*, July, 1858.)

In the great majority of cases the vomiting of pregnancy may safely be left to the influence of time; but there are some cases in which females are scarcely able to retain in their digestive system a sufficient amount of nourishment to support their existence, and are therefore reduced to the last degree of emaciation. In some, also, the shocks occasioned by this obstinate and repeated vomiting become the source of abortions, which might have been prevented by moderating the activity of the morbid phenomenon. A very remarkable case was related in 1856, by M. Teissier, Professor of Clinical Medicine at Lyons, showing the immediately beneficial effect of a dose of pepsine in a case of vomiting during pregnancy. In this case the symptoms resisted all the ordinary methods which were employed, and the patient was unable to retain in

her stomach any substance whatever. Under these circumstances, the patient was brought to M. Tessier, who found her in the following condition: the vomiting had continued for two months, and she was at the end of the fourth month of her pregnancy; she presented the appearance of a skeleton, having the aspect and the cough of a phthisical subject; the pulse was 140, and M. Tessier thought at first that the case was one of pulmonary tubercle. Finding that all treatment had been hitherto inefficient, and that the lady was actually dying of inanition, he was seriously meditating upon the propriety of inducing abortion as a means of saving her life: but as a last resource before operating, he determined to employ pepsine. He accordingly prescribed one gramme, to be divided into two doses, and taken every day in a spoonful of broth. At the very first dose the broth was retained, and from that moment the vomiting never returned. On the third day the lady ate some chicken, and then some beef steak. The treatment was continued in the same manner for three weeks, and at the end of that time the cure was complete: the emaciation was replaced by *embonpoint*, the fever and the cough ceased with the vomiting, and at the end of the ninth month the lady was safely delivered.

Dr. Gibes then relates six other cases in which the pepsine was employed with the same success, and he thinks himself warranted in concluding that pepsine undoubtedly produces good effects in the vomiting which attends pregnancy. He explains the results by supposing that, although in the first instance the vomiting is due only to the sympathy existing between the uterus and the stomach, yet subsequently the stomach itself becomes affected, as is proved by the fact that, in the beginning of pregnancy the vomiting occurs only in the morning or the evening; but in aggravated cases it supervenes after every meal, and all alimentary matters are rejected. In such cases, therefore, when the stomach has taken on a morbid habit, and exhibits an alteration of secretion, the pepsine appears to be really indicated; although in a merely sympathetic action between the uterus and stomach it would be difficult to explain the efficacy of its action.

ART. 121.—*On the removal of the Placenta in the early months of Pregnancy by evulsion.* By Dr. O. C. GIBES.

(*American Medical Monthly*, Dec. 1858.)

In a paper on this subject Dr. Gibes says: "The polished and convex surface of Dr. Carr's deciduous separator is admirably adapted to glide along the inner surface of the womb, and with a little management, to separate the placental attachment. We now use it *without delay* for the removal of retained secundines after abortion when any considerable hemorrhage is present, and we have seen, and can see, no possible danger from its judicious use. Instead of making it, in such cases, our *dernier*, we make it our first resort. We have little doubt but that the uterus will invariably contract, on the removal of the secundines in abortion, yet from habit we almost invariably give ergot."

ART. 122.—*Watery discharge from the Uterus during Pregnancy.*
By Dr. HARVEY.

(*Dublin Quarterly Journal of Med. Science*, Feb. 1858.)

Dr. Harvey made the following remarks on this affection at a meeting of the Cork Med. and Surg. Soc., Dec. 9th, 1857: "In some books on Midwifery, watery discharge from the uterus is noticed as amongst the diseases to which pregnant women are liable. A clear, limpid, colorless fluid, issuing in quantity from a few ounces to pints daily, flows away, sometimes stopping for a short time, and recommencing; and in the majority of cases it continues nearly, or full to the time of delivery. The abdomen does not appear palpably reduced by these discharges, and a living child is commonly born at or near the full time. In the greater number of instances, also, there is evidence of the usual quantity of liquor amnii being present on the separation of labor. Dr. Alexander's case, given in the third volume of the '*Medical Commentaries*,' shows this very prominently. In a case by Dr. Petel, also, in the '*Gazette de Hôpi-*

tanx' of July, 1828, the liquor amnii is specially mentioned as normal in quantity.

"What is the source of this fluid, discharged as it is, to the amount of hundreds of pints in the course of a few months? The supposition of its coming from the cervical glands of the uterus, or from the vagina, both of which have been assumed as sources of it by different authorities, appeared altogether unlikely from the nature of the fluid, its quantity, and its mode of coming away in gushes of a considerable quantity at a time. That it could come from the space between the decidua and chorion, or between the chorion and amnion, we have no pathological facts, so far as I am aware, to warrant our supposing such a source for the flow; whilst in the natural condition of parts such spaces do not exist. As, at a period of pregnancy before these discharges commonly show themselves (say the sixth month, or thereabouts), the cavity between the chorion and amnion has disappeared; and we know that the chorion and decidua are in contact throughout.

"Under these circumstances we seem driven to the conclusion that the amnion must be the source of this flow: that there may be occasional solution of continuity in this membrane, admitting of discharges from time to time, which either close again, or admit by the mechanical relations of the bag to the neighboring parts of the amnion, refilling to a certain extent by a fresh secretion of its particular fluid. In confirmation of this view may be mentioned cases recorded by Dr. Dooman, Professor Burns, of Glasgow, and Dr. Pentland, of Dublin, in which the amnion is said to have given way from fright or other sudden shock, the water being discharged without labor coming on. All these considerations tend rather to the view that the escaping fluid may be liquor amnii than to any other which has been propounded. In the case which I am going to relate, the symptoms were similar to those which were present in the cases of watery discharge which I have been noticing, and in this instance, as will be seen, the flow was undoubtedly amniotic.

"Mrs. —, mother of several children, was for more than a year the subject of heavy sanguineous discharges, which were so little influenced by the treatment adopted, that the existence of polypus was thought possible. An examination revealed considerable congestion of the os and cervix uteri, with superficial ulceration, which gave way to treatment generally and locally applied. During last summer her health was considerably improved, but occasionally menorrhagic attacks, which latterly observed more or less closely the monthly periods, showed themselves. Matters were going on thus when she suffered a considerable shock by her eldest boy meeting with a severe accident, in which his arm was fractured. On that day, for the first time (six weeks before delivery), she had a sudden gush of clear watery fluid from the vagina, and since that time to the date of these notes (5th November), she was scarcely free from it: it would diminish or nearly stop for a few days at a time, to come on again in gushes, and in considerable quantity. The quantity escaping in one of these was seldom less, and generally more, than half a pint, and on the late occasion, when the flow was accompanied by a heavy sanguineous discharge also, she thinks the combined amount was fully a quart. It came on in the horizontal position as well as in the erect, and apparently without any cause. The size of the abdomen did not appear much affected by these at any time.

"The occurrence of the watery discharge suggesting the probability of pregnancy, notwithstanding the men-strual changes which had been going on with some regularity, and that, if pregnancy did exist, the ovum might have suffered hydatid degeneration, I proposed an examination for the purpose of ascertaining the point. I found an abdominal tumor occupying the hypogastrium to above the umbilicus, and on laying my hands over its surface, it gave a good example of the value of a diagnostic indication lately suggested by Dr. Oldham; it afforded distinct evidence of its being uterine by gradually and regularly hardening under my hand. The movements of the child were also felt, and fetal pulsation, distinctly heard by the stethoscope, put an end to all doubts.

"I told the lady that she had passed some six or near seven months of her

pregnancy without being aware of it, and that her labor would probably come on prematurely, all of which she entirely disbelieved, and I could not induce her to make the necessary preparations. Two days after, I was called to her—the first stage of labor having set in with unusual distress and irritation; the pains particularly sharp and unbearable; the os uteri was hard and unyielding and the breech, presenting in the second position, was felt in close contact. I immediately put her on antimonial solution, notwithstanding which the os uteri took over three hours to relax. After a first stage of about four and a half hours, and a second of less than half an hour, a male child, of scarcely seven months' growth, was born. The presenting hip and buttock were perfectly black, evidently from the direct pressure to which they had been subjected, in consequence of the loss of the liquor amnii. None whatever escaped with the child, and the sanguineous discharge was also unusually scanty. I do not think I ever witnessed so dry a labor."

ART. 123.—*On the use of Chloroform during labor.* By Dr. SPIEGELBERG.

Monatsch. für Geburtsh., Bd. xi. pp. 29-34; and Medical Times and Gazette, March 5, 1859.

At the Berlin Midwifery Society, Dr. Spiegelberg, noticing the chief objections which have been offered to the employment of chloroform during labor, observed that one of the chief of these was that it delayed, weakened, or put off the pains. But not only was there no physiological reason why it should act thus, but all practical observation contradicted the assertion. No one had seen such effects when the anæsthetic had been properly administered; and even when the narcosis had been carried to the complete annihilation of sensibility and voluntary movements, after a temporary suspension, the pains return quite regularly again at the end of a few minutes. Many practitioners only measure the degree of the activity of the pains by the cries and movements of the patient; and as these disappear, they believe that the pains also have disappeared, or at least have become much enfeebled. That the voluntary activity of the abdominal forces has disappeared is true enough, but the involuntary action, which alone is quite sufficient, remains unimpaired. A second objection to the use of chloroform is still less founded, viz., that which attributes mischief to the mother consequent on its employment; and by the unprejudiced mind the practice of those who employ chloroform will be found to be more successful than that of those who reject it. As yet no case of death has occurred from its obstetrical employment. Dr. Spiegelberg believes that it is admissible, though not necessary, in cases of entirely normal labor, and in these he is guided by the wishes of the patient; while in abnormal, and especially in instrumental labor, it is urgently called for when contra-indications do not present themselves. Certainly no innovation in practice of such importance has ever met with such rapid approval as the obstetrical use of chloroform; and a considerable portion of the opposition it has met with has been due to the faulty mode of its employment. To secure its beneficial agency the patient should be kept in a state of complete repose, and brought at once into a pretty deep state of anæsthesia, no stage of excitement then occurring. Afterwards she should only inhale during the presence of the pains, and to an extent only necessary to relieve these. The simplest form of apparatus should be used, namely, a conically folded handkerchief.

Dr. Schneemann observed that he could not agree in the desirableness of chloroformizing in ordinary cases, inasmuch as there was no necessity for it, while he had often observed ill consequences, especially a disturbance in the delivery of the placenta; and, moreover, the maintenance of the anæsthesia is a difficult and time-consuming procedure when no assistant is present.

Dr. Rehnbaum had never met with any of these ill consequences. He resorted to chloroform in operative midwifery, and in dynamic disturbances when appearing to be dependent upon excitement of the nervous system.

Dr. Breslau objected to the giving the chloroform on a handkerchief, because too much is used in this way, and the air of the room becomes impregnated with it. He employs, usually, a enouchouze bottle, containing a sponge soaked in chloroform.

Dr. Birnbaum objected to all such means, for the escape of the chloroform, by due care and the proper folding of the handkerchief, may be prevented.

Dr. Spiegelberg observed, that although certainly more chloroform is employed when the handkerchief is used, yet this deserves to be preferred. When an inhaler is used, we cannot, with the same ease as with the handkerchief, follow the various movements of the head. Then again all these apparatus have something repulsive about them, as they have to be used by one person after another; and it is inconvenient carrying them about one. But the greatest objection is that they cover up the mouth, and sometimes the nose also, which is productive of danger.

Dr. Kilian observed that he employed chloroform in normal labor only in very restless and very sensitive persons, especially in the last stage, when the perineum is endangered by the restlessness. In operative midwifery, except in the Cæsarean section, when relaxation of the uterus and hemorrhage are to be feared, and in dynamic disturbances, he, at the present time, makes a pretty extensive use of anesthesia. He only induces the so called first stage of narcosis by applying a handkerchief to the face, enabling the air as well as the chloroform to come in contact with it, and repeating this with the recurrence of the pain. He has never met with any arrest of uterine activity, or any trouble in the delivery of the placenta.

ART. 124.—*On the shortening of the Duration of Labor.* By Dr. J. GRAY.

(*Glasgow Medical Journal*, Jan. 1858.)

In order to increase the action of the uterus, and thereby hasten delivery, Dr. J. Gray advises us to excite the nipple as labor-pain comes on, and continue the stimulation so long as it lasts. This is accomplished by passing the left hand gently but continuously upwards and downwards over one or other of the nipples; or by stimulating with the fingers the act of sucking of the infant. By such manipulation, he says, the nipple erects, and, in virtue of reflex action, the uterine contractions increase in force; while at the same time the os dilates, and the external parts become relaxed. Besides shortening the duration of labor, he finds it has also the effect of preventing hemorrhage. The second stage of labor completed, if the placenta be not in the passage, he still maintains at short intervals the friction over the nipple, in order that the uterus may expel its contents; and also resorts to it in cases where he has occasion to fear "flooding."

"Reasoning," Dr. Gray remarks, "from the practice of ancient and modern times, and influenced especially by the theory of reflex action, as recently discovered and propounded by Marshall Hall, I have lately been led to adopt this mode of irritating the nipple, in order to increase the action of the uterus, with a view to the abridgment of labor. If, I inquired, the application of the child to the breast causes the womb forcibly to contract, and thus prevents 'flooding,' may not a similar operation, artificially performed, have the same effect in promoting the contractile efforts of the uterus, and hastening the delivery? That it does so, very ample trial has fully convinced me. In difficult cases, indeed, which require instrumental aid for their termination, it will most probably prove useless—failure depending upon malformation either on the part of mother or child. But where the child is in the normal position and of average size, and should no deformity exist in the pelvis or soft parts of the mother, I have found it generally successful. I never, however, be it remembered, interfere in those cases where there is already active uterine contraction."

ART. 125.—*On the Prevention of Laceration of the Perineum.* By Dr. MATTEI.

(*Vertheiljahrscr. f. Prakt. Heilkunde*, 1858; and *Medico-Chir. Review*, Oct. 1858.)

Dr. Mattei has the following remarks on the means of preventing laceration of the perineum: It is especially necessary that the head pass the vulva in a favorable direction. This can only happen when it passes with the necessary degree of flexion. While the occiput passes under the pubic arch, the face has not yet quitted the pelvic outlet, first when the upper part of the neck comes

under the pubic arch, can the extension of the head (or the separation of the chin from the breast) begin. If the distension of the perineum begins too early, the head must pass the vulva with unfavorable diameters—namely, with the great oblique, or great or straight diagonal diameters. Such a passage easily causes laceration. Hence it is the task of the physician to prevent a premature distension by the head. This he effects by placing two fingers between the labia, or in some cases between the pubic arch and occiput, so as to bring the head downward and outward, at the same time laying the other hand on the hinder part of the perineum, upon which the face is lying, and pushing this upward. This manoeuvre is to be executed during the pains, which will thus protract the head forward in the requisite arc. A very simple means of expediting the birth of the head consists in compressing firmly the distended perineum with the whole hand. This resembles the squeezing out of the kernel from a cherry. On the passage of the shoulders care must be taken lest the two shoulders pass together.

ART. 126.—On the Pathology and Treatment of Placenta Prævia.

By Dr. A. S. DONKIN, of Newcastle-upon-Tyne.

(Edin. Med. Journal, April, 1859.)

Dr. Donkin's object in this paper is to show that in those cases in which the placenta is detached, and the hemorrhage arrested by nature's spontaneous effort, *the separation of the placenta and the arrest of the flooding do not stand in the relation of cause and effect, but as the concomitant result of cervical expansion, both progressing pari passu.* Nature then does not separate the placenta completely from the cervix, until the very period arrives when she has completed the mechanical closure of the mouths of the utero-placental vessels, which have been opened in the process. The forcible detachment of the placenta by the finger, to any extent, is therefore incorrect in principle, inasmuch as it merely tears off the placenta, without making any provision for arresting the hemorrhage, which flows from the vascular orifices opened on the cervix by the operation.

The practical objections to which artificial detachment of the placenta is liable, as proved by experience, are the following: *First*, the gross mortality in those cases in which it has been employed is equivalent to one in four-sixteenths; while the gross mortality in cases of spontaneous expulsion of the placenta is only one in fourteen and a half. *Secondly*, that although introduced into practice for the ostensible purpose of preventing the necessity of turning in a certain class of cases, we find that exactly *one half* of the cases treated by this method subsequently required the operation of turning in addition.* Notwithstanding these objections, the fact must not be ignored, that in a considerable number of cases a cessation of the hemorrhage has followed this practice—a result which appears in many instances to have saved the life of the mother. But as the operation is attended and immediately followed by a profuse flow of blood, this, by suddenly and powerfully depressing the heart's action, will permit the process of coagulation to take place in the bleeding mouths of the vessels. In this manner we may account for the subsequent arrest of the flooding; for we know that a sudden and copious gush of blood, by its salutary influence in producing early and temporary pre-striation or collapse, and thereby enabling coagula to form, is considerably less dangerous to life than a small and continuous stream of blood, which seldom acts on the circulation until it does so with a force which is at once irremediably fatal. Thus, in thirty-one of the recorded cases, or about one half of the entire number treated by this method, it is expressly stated that the detachment of the placenta was resorted to under the condition of extreme exhaus-

* In Dr. Trusk's Statistical Table III., we find that, up to the period of its publication, in 1859, the total number of cases on record in which the placenta was forcibly detached by the finger amounted to 66; of these, 47 recovered and 13 died; while 33, or exactly half the number, required the operation of turning in addition.

tion.* Now in these cases the already existing prostration of the circulation was unquestionably such as would enable coagulation to plug up the open mouths of the utero-placental vessels, and thereby prevent further bleeding. In other cases, again, it would seem that the operation was performed at the period when nature would have detached the organ; so that in these cases the arrest of the flooding can be accounted for by the change which the cervix had already undergone.

So far, then, as our statistical knowledge will enable us to judge of the value of this method of treating *placenta prævia*, it would appear not to have been attended with the success which was anticipated on its first introduction into practice: consequently, we are justified in attempting to devise some other means of arresting the flooding in the early stage of labor, in those cases whose characters rank them in the second class already defined. If we desire any method of treatment to be successful in these hazardous cases, we ought to endeavor to base it on a correct appreciation of the process which nature brings into operation to arrest the hemorrhage. If, therefore, it is correct that the process in question is *expansion of the cervix*, we ought to assist her in effecting it, when her own powers are inadequate for the purpose.

It is from these considerations that, in the cases alluded to, in which something must always be done not only to check the flooding but to advance the labor, that *mechanical expansion of the cervix, by means of a sponge tent specially constructed for the purpose*, is recommended as a method of treatment. From the operation of this procedure, the following results may reasonably be expected:—

1. It would gradually throw off the placenta, and by putting the fibrous structure of the cervix on the stretch, it would compress the utero-placental vessels. In other words, it would, by its action on the cervix, detach the placenta and arrest the hemorrhage *pari passu*.

2. It would act both as a plug and as a powerful compress applied to the opened mouths of the utero-placental vessels.

3. It would excite uterine action.

In order to produce these important effects, the *sponge tent* employed would require to be rounded at its upper extremity to prevent its introduction injuring the placenta; it would require to be of large size, and so constructed as to expand rapidly under the influence of tepid injections.

To this method of treatment might be added the administration of ergot, or the application of galvanism, as recommended by Dr. Mackenzie, of London, according to the peculiarities of each individual case.

ART. 127. — *A case of Cæsarean section, with observations.*

By Dr. MURPHY, Professor of Midwifery in University College, London.

(*Dublin Quarterly Journal of Medicine*, Feb. 1859.)

Little need be said about the case. The patient was thirty years of age, and the mother of seven children, all of whom had been born at full time without difficulty. The cause was distorted *pelvis* from *mollities ossium*. The operation was performed on the 12th of July, 1859, and a dead child extracted; death happened from *asthenia* on the 14th.

Having no faith in conclusions derived from the statistics of the Cæsarean operation, Dr. Murphy has endeavored rather to compare similar cases, and the results of each operation, and the inquiry has led him to these conclusions:—

- 1st. That there are certain cases of *mollities ossium* in which it is impossible to extract the child; in others, it may be possible to do so, but by an operation of such difficulty and danger to the mother, that we are not justified in sacrificing human life for such a doubtful chance.

- 2dly. There are cases of distortion, in consequence of rickets, in which the disproportion is confined to the antero-posterior measurement of the brim of

* Of these cases 23 recovered and 8 died, giving a mortality of more than 1 in 3, or exactly 1 in 2½.

the pelvis; but that space is sometimes so diminished, that the operation of craniotomy becomes equally difficult and dangerous as in the former case. Under these circumstances, the same rule applies with even more force, because, as the woman is generally in good health, the chances of recovery from the Cæsarean section are greater. This operation seems to me justifiable if the conjugate axis of the brim is only two inches.

"3dly. When tumors obstruct the pelvic cavity so as to leave a space of little more than two inches through which to extract the child, the practitioner is not justified in attempting craniotomy; not only because of the danger to the mother of the operation itself, as in Dr. Shekleton's case, but because the pre-existing disease in the parent renders her life so doubtful that we are not justified in taking human life when there is every probability of the mother sinking under the disease, even if she escape the dangerous operation of craniotomy.

"Lastly, I may add, that my objection to statistical conclusions is founded on the fact—1st, That the number of cases in which the Cæsarean section has been performed in these countries is not sufficiently numerous to correct the errors produced by accidental causes. The operation has been performed in several cases under every disadvantage, arising from long-protracted labor, pre-existing inflammation, and such like causes of a fatal issue, the mortality being thereby disproportionately increased. 2dly. It is at present impossible to separate those cases in which craniotomy was performed, in consequence of extreme disproportion in the pelvis, from those in which the disproportion is only so great as to prevent delivery by the forceps. Consequently, the total results of such cases must be erroneous. With this objection, I shall place in a tabular form the whole number of cases reported."

Place.	Total cases.	MOTHERS.		CHILDREN.		OBSERVATIONS.
		Living.	Dead.	Living.	Dead.	
Great Britain	67	10	46	34	25	Cause of death in Mr. Whitehead's case doubtful.
America	12	8	4	6	4	Two results not reported.
Europe	409	168	251	237	110	Dr. West's table.
Total	478	176	301	277	139	

British Cases of Cæsarean Section.

No.	Year.	Practitioner.	Cause.	Duration of labor.	MOTHERS.		CHILDREN.		AUTHORITIES.
					Living.	Dead.	Living.	Dead.	
1	1767	Mr. R. Smith	Mollities ossium	7 d'ys	1	1	1	1	Smellie, vol. ii. p. 423.
2	1768	Mrs. Donnelly	....	12 d'ys	1	1	1	1	Edinburgh Essays, vol. v.
3	1768	Dr. Wilson	....	....	1	1	1	1	Hall's Defence, p. 67.
4	1768	Mr. Thompson	....	....	1	1	1	1	Medical Observations, vol. iv.
5	1774	Dr. Ferriar	Rickets	....	1	1	1	1	Manuscript Lectures by Dalry.
6	1774	Mr. A. Wood	....	....	1	1	1	1	Hamilton's Outlines.
7	1774	Mr. Chalmers	....	12 d'ys	1	1	1	1	Doct.
8	1774	Dr. J. G. Hunter	Mollities ossium	....	1	1	1	1	Medical Observations, vol. v.
9	1774	Dr. Cooper	....	2 d'ys	1	1	1	1	Doct.
10	1774	Mr. W. Whyte	Mollities ossium	....	1	1	1	1	Hall's Defence.
11	1777	Mr. Atkyns	....	3 d'ys	1	1	1	1	Doct., p. 17.
12	1777	Mr. Clarke	....	3 d'ys	1	1	1	1	Mem. Med. Society, vol. III.
13	1779	Mr. Barlow	....	3 d'ys	1	1	1	1	Medical Records, p. 154.
14	1779	Dr. Hall	Mollities ossium	....	1	1	1	1	Hall, p. 172.
15	1779	Dr. Hamilton, Jr.	....	3 d'ys	1	1	1	1	Han. Hen's Outlines.
16	1779	Dr. Hall	....	10 d'ys	1	1	1	1	Hall, p. 162.
17	1779	Mr. Kay	....	3 d'ys	1	1	1	1	Doct.
18	1780	Mr. Wood	Mollities ossium	....	1	1	1	1	Mem. Med. Society, vol. v.
19	1780	Mr. John Bell	....	....	1	1	1	1	Med. Chirurg. Trans. vol. iv.
20	1781	Mr. Denlap	Mollities ossium	....	1	1	1	1	Agnes & H. Translation.
21	1781	Mr. Wood	....	....	1	1	1	1	Med. and Phys. Jour. p. 346.

British Cases of Cesarean Section—Continued.

No.	Year.	Practitioner	Cause	Duration of labor.	Mo- thers		Child- ren		AUTHORITIES
					Living	Dead	Living	Dead	
22	1817	Barlow & Coxe	....	...	1	1	1	1	Barlow's Essays.
23	1817	Dr. Barlow	Mollities ossium 34 hrs	...	1	1	1	1	Edin Med Journ vol iv p 67.
24	1821	Dr. Barlow*	"	...	1	1	1	1	1845.
25	1822	Barlow & Douglass	....	...	1	1	1	1	Meacham & Churchill, p 317.
26	1822	Dr. Barlow	....	...	1	1	1	1	Ditto.
27	1823	Dr. Barlow†	Mollities ossium 83 hrs	...	1	1	1	1	British Med Journ 1826, p 43.
28	1823	Dr. Barlow	.... 33 hrs	...	1	1	1	1	Barlow vol x p 212.
29	1826	Dr. Crochett	.... 6 hrs	...	1	1	1	1	Edinburgh Journal, 1826.
30	1827	Mr. Knowles	Mollities ossium 30 hrs	1	1	1	1	1	Trans of Prov Assoc vol iv p 53.
31	1829	Dr. M. Keble	Exostosis	...	1	1	1	1	Ditto 1831, p 332.
32	1831	Mr. Ward	....	...	1	1	1	1	Lancet, 1839-40, vol ii p 26.
33	1833	Mr. Crochett	....	...	1	1	1	1	Lancet, 1833 p 146.
34	1834	Dr. Montgomery	Fibrous tumor	...	1	1	1	1	Edin Journal, vol vi p 418.
35	1834	Mr. Ross	....	...	1	1	1	1	Edin Month. Journ 1842.
36	1834	Dr. Elliot	....	...	1	1	1	1	Churchill's Midwifery p 321.
37	1833	Mr. Crochett and Dr. Barlow	Mollities ossium 3 d y	1	1	1	1	1	British Obstet Record, vol.
38	1840	Mr. Whitehead	"	...	1	1	1	1	Medical Gazette, 1841, p 940.
39	1841	Mr. Keble	....	...	1	1	1	1	Hankings, vol. vii p 330.
40	1843	Barlow & Harley	....	...	1	1	1	1	Ditto.
41	1843	Mr. Tye	....	...	1	1	1	1	Edin Med. Journ. Dec. 1843.
42	1843	Dr. Wagh†	....	...	1	1	1	1	Lancet, vol ii, 1840-40, p 28.
43	1847	Mr. Shaw	Rickets	...	1	1	1	1	Hankings, vol v p 293.
44	1847	Dr. Barlow	Mollities ossium	...	1	1	1	1	Ditto vol x p 212.
45	1849	Mr. Campbell	....	...	1	1	1	1	Ditto, vol. x, p 330.
46	1849	Mr. Shaw	....	...	1	1	1	1	Edin Monthly Journ 1850.
47	1849	Dr. Smeetham	....	...	1	1	1	1	Lancet, July, 1850.
48	1850	Dr. West	Mollities ossium	...	1	1	1	1	Med-Chir Trans, vol. xxxiv, p. 61.
49	1850	Dr. Oldham	"	...	1	1	1	1	Ditto, p 59.
50	1851	Dr. Oldham	Scirrhous tumor	...	1	1	1	1	Lancet, 1851, vol ii p 226.
51	1851	Dr. Walter	Fibrous tumor	...	1	1	1	1	Med Times and Gazette, vol. xxvii p 246.
52	1854	Dr. Simpson**	Mollities ossium	...	1	1	1	1	Brit. Med Journ 1854, p 1098.
53	1856	Mr. Humphrey	....	...	1	1	1	1	Ditto, 1856, p 773.
54	1856	Mr. Thornton	....	...	1	1	1	1	Lancet, 1857, p 313.
55	1858	Dr. Greenhalgh	Mollities ossium	...	1	1	1	1	Brit Med Journ 1858, p 377.
56	1858	Mr. Hawkins	Rickets	1 hr	1	1	1	1	Med. Times and Gazette, 1858, p. 451.
57	1858	Dr. Murphy	Mollities ossium	...	1	1	1	1	
					10	6	34	23	

American Cases of Cesarean Section.

1	1822	Mr. Collis	....	...	1	1	1	1	New York Journ. March, 1822.
2	1827	Dr. Richmond, O.	....	...	1	1	1	1	West Med Journ N. Y. 1827.
3	1827	Prof. Deane and Varney††	....	...	1	1	1	1	Am Journ. of Med Sci., O. S., vol xvi p 346.
4	1825	Nancrode & Co. b. son.	....	...	1	1	1	1	Ditto, vol. xvi p 343.
5	1837	Dr. Fox & Mr. Gabb.	....	...	1	1	1	1	Ditto, vol. xvii p 13.
6	1840	Dr. Brodie Herdon	....	...	1	1	1	1	Am Journ of Med Sci, N. S., vol. xii p 386.
7	1843	Dr. C. Fairbank	....	...	1	1	1	1	Ditto, vol vi p 204.
8	1848	Dr. A. B. ... A tumor	....	...	1	1	1	1	Amer. Journ. vol xviii p 123.
9	1848	Mr. M. H. ...	....	...	1	1	1	1	Ditto, vol. xxi p 638.
10	1849	Dr. W. H. V. ...	....	...	1	1	1	1	Ditto, vol. xxi p 647.
11	1850	"	....	...	1	1	1	1	Ditto, and Charleston Medical Journal for March, 1851.
12	1851	"	....	...	1	1	1	1	Ditto ditto.
					8	4	16	4	

* The child's head caught by the contracting uterus caused its death. † Twins.

† One of the six cases quoted by the Lancet from 'L. Experience,' but the details not given.

‡ Mother died on thirty-second day, of puerperal disease. § Twins.

¶ Quoted by Lancet from 'L. Experience,' vol. p 28, 1836-40.

** Mother died before the operation.

†† Uterus ruptured before the operation.

‡‡ A dwarf, 3½ feet high.

§§ Patient sinking before the operation.

|| Cases 10, 11, and 12—the same patient, who was delivered successfully twice by the Cesarean section, previous to the third operation from which she did not recover. Nothing is said about the previous children. Case reported by Dr. F. Owen.

ART. 128.—*On the Delivery of the Child by Turning as a general rule in labor.*
By MR. E. GARLAND FIGG, of Borrowstowness.

(*Med. Times and Gaz.*, Nov. 13 and 20, and Dec. 25, 1858.)

In this paper Mr. Figg attempts to show, not only that delivery by turning is preferable to delivery by the forceps in cases requiring operative interference, but that turning is the rule to be adopted in general cases. He tells us that he has attended sixty labors since writing these papers, that only three of these were conducted as head presentations, and that of the remainder two were breech presentations, and fifty five deliveries by turning. As the results of this astonishing practice we leave Mr. Figg to speak for himself:—

"With regard to the children, they are generally still from two to five minutes, and in some cases half an hour's duration. In many instances the first arm brought down is a little painful when moved for a day or two. I confess with humility that I have even broken four arms, which, though they occurred in cases of great pelvic contraction, were attributable to my own mismanagement in pressing over the shaft of the os humeri instead of following its line to the elbow. Should you commit the same error, with similar result, be not too candid to the relatives, but at once by your own dictum transmute the injury into a slight sprain received by the infant striking its shoulder against the backbone of the mother while actively prosecuting his uterine gambols. It will pass current, more especially if you appeal to her experience, when it is sure to be corroborated by a quotation of the day and hour of the occurrence. Two slips of pasteboard applied, with a strip of calico a yard long, remedies the evil in ten days.

"In establishing a comparison between the advantages derivable from turning in primipara and multipara, I believe there is a preponderance of argument in favor of the former. In a primipara the os uteri is more in the axis of the pelvic brim, the body of the organ being more inclined to the perpendicular, and not projecting anteriorly, as in the frequent parturient, hence, in the former case, the uterine efforts of the last month previously to labor lodge the os and cervix inclusive of the head low in the cavity of the pelvis, not only assuring the practitioner by tangible proof of the perfect capacity of the brim, but also presenting the best arrangement for the co-operation of the uterus with his extractive efforts. In the latter case, from the yielding of the abdominal muscles in former labors, the fundus bearing forwards, throws the os in the direction of the spine, rather than the pelvic cavity. Hence until the contraction of these muscles in some measure restore the proper axis, no advance can take place.

"The advantage in the second particular is briefly explained, by stating that in a primipara the antagonistic force is directly in line with the extractive. In a multipara it is entrained round a corner.

"Again, in a primipara case you have good grounds for the conviction that, in obtaining the perineal stage, you limit the labor considerably; while in the latter patient an hour's suffering might conclude the case.

"Be they right or wrong, these are the sentiments which have guided my conduct in a large majority of my cases latterly, experience appearing to justify in happy results what theory dictated on sound reasoning. I hope I shall soon lose all mental impressions of a head lingering on the perineum, or stationary from failing pains for hours. My primipara patients are up in four days, without swelling of the vaginal muscles, nymphæ, or labia; and what to me is perfectly unaccountable, with very slight laceration of the perineum.

"I have had but one maternal death where the infant was turned, and that occurred five days after the event, by inflammation of the peritoneum of a patient, who, with contracted pelvis, had submitted to the ordeal to produce her sixth full-timed dead child.

"If I be entitled to any credit at all, it is for the candid avowal of a practice, that some, under fear of professional censure, would have adhered to but concealed.

"The operation was ancient, but nearly obsolete, and its revival by Dr. Simpson in particular circumstances led to my adoption of it in general cases."

In a latter communication, written chiefly as an answer to the strong objections of Drs. Hunt, Lee, Ramsbotham, and Otham, are the following passages: "Permit me," says Mr. Fizz, "with humility to observe, that while physiology, anatomy, and analogy enable me to connect as rational a theory for the operation as they can against it, I bring forward a formidable ally to my cause in nearly eighty-seven consecutive cases of perfect convalescence in mother and child, without adverting to a still greater number of successful instances effected at various intervals antecedently. Do these gentlemen impugn my veracity? Let them depute any member of the profession resident either in Edinburgh, Glasgow, or London, to visit the locality of my residence, and by impartial inquiry of my patients prove its immunity from danger and their satisfaction as to its adoption." And again: "While my deliveries average two per week, I have had but one death during the year—the second child of a woman aged 45, born to a second husband after a widowhood of fourteen years."

ART. 129.—*A case of Delivery after the death of the mother.* By Dr. FRENTHROP.

(*Gaz. Heb. de Med. et Chir.*, Jan. 21, 1859.)

CASE.—A young and strong peasant, who, on a previous occasion, had been delivered of a child without any difficulty. When Dr. Frentthrop saw her, she had been in labor upwards of forty hours; the waters had come away, and a maggotum, finding that the labor was not progressing favorably, had made several fruitless attempts to deliver by turning. On examination, the right arm of the child was found protruding from the vagina, and the contractions of the uterus were fierce and incessant, although bleeding and other measures were employed to subdue them. Twenty-four hours later, the woman died undelivered. Some hours later still, she was undressed and laid out upon a straw bed. On the day following, when arrangements were being made for the funeral, the child was found between the thighs of the mother, and the placenta was half expelled from the uterus. These are the principal facts in this remarkable case.

ART. 130.—*On the Puerperal Diseases observed in the Charité of Berlin.*

By Professor VIRCHOW.

(*Monatschr. für Geburtskunde*, vol. xi. p. 409, 1858.)

Puerperal diseases had prevailed in the Charité, without cessation, from the autumn of 1856 to the middle of March, 1858, during which time eighty-three fatal cases occurred. As in the epidemic of 1846-47, the frequency and severity of cases was greater in winter than in spring, a circumstance in which puerperal fever differs from hospital gangrene, which occurs particularly in spring. According to the author's opinion, it is possible that this aggravation is owing to a concentration of the miasmata in the wards, ventilation being only sparingly used, for fear of producing colds.

In two cases only the very insignificant local changes were in no proportion to the severity of the symptoms; but it must be remarked, that these cases did not coincide with the maximum intensity of the epidemic, and that both patients had already, previous to their confinement, suffered with nervous symptoms. The rapidly fatal termination was thus not attributable to an intense alteration of the blood, but perhaps to a special predisposition of the nervous system. Acute endocarditis was observed in a large number of cases; it affected particularly the mitral valve, and produced in its tissue a peculiar softening and small crevices. Twice the fragments, detached from the valve by the current of blood, had produced obstructions in the capillary vessels and circumscribed foci of inflammation; in one of these cases small purulent collections were found in the muscular tissue of the heart, in the kidneys, the spleen, the liver, and both eyes; the uterus was normal. In the centre of these abscesses, as well as in a small artery, fragments of the mitral valve

were found by chemical analysis. Similar anatomical changes were observed in four cases. From this circumstance, Professor Virchow draws the conclusion that the heart is frequently the point of issue of these so-called metastatic abscesses, and that, in a certain number of cases, they are the consequence of capillary embolia, and not of pyæmia. (One of the patients succumbed suddenly to softening of the heart; it is, therefore, necessary to examine this organ attentively in every case where the state of the abdomen does not account satisfactorily for the gravity of the symptoms. In a patient who had suffered with hemiplegia of the left side, the veins of the arachnoid of the right hemisphere were obliterated by clots, and a great part of the cerebral substance was oedematous, and had ecchymotic spots disseminated through it. These lesions were, however, exceptional; in most cases peritonitis was present, and was often exclusively observed. It was found in two different forms; the first was superficial, and the exudation, either plastic or purulent, was deposited on the surface of the peritoneum. In the other much severer form the cutaneous areolar tissue was implicated, and transformed into a detritus mixed with pus. This form is identical with the diphtheritis of the internal surface of the uterus, which most frequently occurs on the surface of insertion of the placenta.

The uterus was inflamed only in one case; the inflammation was very extensive, and had terminated in gangrene. Inflammation of the ovaries was more frequent, and also assumed two forms analogous to those of the peritonitis. In one there existed a superficial hyperæmia, followed by abscesses in one or more follicles, and consequent effusion of pus into the peritoneum; in the other, a diffuse inflammation of the parenchyma was observed, producing considerable swelling and softening of the ovary.

Some stages of the epidemic were characterized by the frequency of phlebitis, nearly always accompanied by metastases, which Professor Virchow ascribes to embolia. The angioleucitis was, on the contrary, rarely complicated. Professor Virchow explains this difference by the arrest of the migrating particles in the lymphatic glands, where they become a source of inflammation.

The inflammation of the vessels is most frequently the consequence of ruptures of the perineum, of the vagina, and of the neck of the uterus, and is often complicated with extensive gangrene of the areolar tissue in the true pelvis and iliac fossæ. Professor Virchow observed a case of this kind at Würzburg, in which the retro-peritoneal inflammation extended from the organs of generation upward to the diaphragm.

ART. 121.—*On the employment of Oil of Turpentine and Opium in large doses, in severe Puerperal Diseases.* By Dr. E. BONFELS.

(*Bull. Gen. de Therap.*, May 30, 1858; and *Médec. Chir. Review*, Jan. 1858.)

M. Trousseau has lately employed, with considerable success, a method of treatment proposed originally by Dr. Graves, in puerperal diseases. This treatment consists in giving opium and oil of turpentine in large doses to women in child-bed who are attacked with metro-ovariitis, peritonitis, uterine phlebitis, &c. Among other cases, M. Trousseau has treated in this manner, and with success, a woman attacked with peritonitis and double pleuro-pneumonia. He also employed this plan in another case of a woman attacked with general and very severe peritonitis, which was very rapidly checked and afterwards cured, but although the cure appeared to be permanent, the patient was unfortunately seized with hectic symptoms of an insidious character, and sunk under what appeared to be a putrid infection. In the first case the opium was prescribed in pills and the turpentine in injections. At first five centigrammes (about one grain) of opium were given in five pills, to be taken daily; then the dose was gradually augmented till it reached about two grains a day. The opium was continued for thirteen days. The turpentine was administered at first in the dose of ten grammes (about two drachms and a half), in two clysters, one in the morning and the other in the evening; then the quantity was progressively augmented to thirty grammes (about seven drachms and a

half). In the second case the opium was also given in pills, in the dose of five centigrammes (about one grain) for three days. The oil of turpentine was administered by the mouth in capsules, each containing one gramme (about the fourth of a drachm) of turpentine; six of these capsules were taken every day, and they were continued for six days.

ART. 132.—*The Essential Oils in the Treatment of Puerperal Fever.*

By Mr. Dove, of Norwich.

(*Brit. Med. Journal*, April 9, 1859.)

Considering what a nauseous medicine turpentine is, that it irritates the kidneys, suffuses the eyes, and produces more or less head symptoms, Mr. Dove was induced to try, in its stead, the essential oils, selecting that of peppermint, and giving thirty or forty minims in divided doses during the twenty-four hours. He has now used this oil in seven cases of puerperal fever, and the oil of caraway in another case, with all the advantages of the turpentine. The dull color of the complexion, oedematous condition of the surface, and offensive evacuations usually observed in puerperal fever, he thinks, point out the necessity of commencing the treatment with a stimulating aperient.

For illustration, he details the most severe of the eight cases.

CASE.—Mrs. G—, a delicate woman, æt. 20 primipara, attended by a midwife, had an easy labor, and did well for four days; but on the fifth, she complained of chills, profuse perspirations, headache, intense thirst, vomiting and purging of offensive matters, and pain and distension of the abdomen. She was restless, her countenance was anxious, breathing short and hurried, tongue covered with a white fur, pulse 160; the lochia and urine were scanty, the skin was of dull color and oedematous. A dose composed of tincture of rhubarb and castor oil, of each half an ounce, with five minims of the oil of peppermint in a little water, was immediately administered, and thirty minims of the oil of peppermint were given in divided doses, during the twenty-four hours. A spirit lotion was applied to the head, and mustard poultices to the abdomen.

On the following day the vomiting had ceased; the headache was relieved, and the pulse was considerably reduced. The purging, thirst, and perspirations continued for a few days and gradually ceased. In this case convalescence was slow, differing from the others, in which convalescence was remarkably rapid. Instead of the loathing usually expressed where turpentine has been used, there was an evident desire to take this oil, and, indeed, to continue it, when the necessity for it had ceased.

Mr. Dove's belief is, that almost all the essential oils would do just as much good as the turpentine, and he does not think that he shall have recourse to the turpentine again.

ART. 133.—*On Inflammation of the Fallopian Tubes, and Escape of Matter into the Peritoneum, as a Cause of Puerperal Peritonitis.* By Dr. A. MARTIN.

(*Monatsch. f. Geburtsh.*, Jan. 1859; and *Med.-Chir. Rev.*, April, 1859.)

Dr. Martin relates five cases in support of the proposition that inflammation of the Fallopian tubes and discharge of the purulent secretion into the abdominal cavity is a cause of puerperal peritonitis. He refers to a passage in Cruveilhier's '*Anatomie Pathologique*,' in which that admirable pathologist suggested this explanation of some cases of peritonitis. It is right to reproduce this passage:—

"The presence of pus in the Fallopian tube being an extremely frequent phenomenon in peritonitis, I have asked myself if it were not possible that peritonitis was in some cases the result of the passage of pus from the cavity of the tube into the cavity of the peritoneum; if capillary attraction or vital suction be exerted in the act of conception upon the spermatic fluid by the Fallopian tube, might not it be exerted as well upon the pus or any other liquid contained in the cavity of the uterus?"

It is desirable to give briefly the cases of Dr. Martin, so as to expose the evidence upon which his proposition is based.

Case 1.—A primipara, *æt.* 22, delivered in the *Jena Lying in Hospital* on the 24th of April, 1839, after a natural labor, of a strong living child. She felt a "chill" a short time afterwards. Suddenly, on the 2d of May, pain set in in the left abdomen; on the 3d of May, this was more intense, and fever was added; on the 6th, diarrhoea and delirium; on the 7th, death. The treatment consisted of twelve leeches applied on two occasions during the first days; castor oil, opium, camphor, and ipecacuanha.

Autopsy.—A sero-purulent effusion in the lower part of the abdominal cavity; the omentum was glued to the peritoneum in front by puriform gelatinous masses. The uterus and lower intestinal convolutions were also covered with purulent exudations. The uterus was of the size of a large fist; the *left tube* was considerably enlarged in its outer third, and filled with purulent mucus; the fimbriae were swollen. The right tube had also swollen fimbriae, but its canal was not enlarged. The substance of the uterus was pale, normal, the inner surface reddened and covered with purple blood; there was a mucopurulent discharge at the placental seat. (It is not stated at what part of the uterus the placenta had been seated.)

Case 2.—A primipara, *æt.* 33, was delivered in the *Jena Lying in Hospital* on the 5th November, 1853, of a living child, after a natural labor. On the evening of the 6th, there was tenderness in the right side of the abdomen, and fever; ten leeches were applied. On the 7th, there was an offensive discharge. On the 9th, general symptoms worse; hurried breathing with bronchial secretion, diarrhoea, headache. On the 10th, death.

Autopsy.—The uterus rose above the promontory of the sacrum; its muscular structure was anemic, containing no pus; its cavity, especially at the placental seat at the left angle, was covered with a gray-red pulpy mass, entangled shreds of vessels and plugs of blood; the cervical canal was filled with sanguinolent purulent fluid. At the abdominal extremity of both tubes was a purulent exudation, which was continued throughout the entire mucous membrane; the *right tube* was much enlarged, the mucous membrane loosened and partly covered with a yellow, purulent secretion; the right ovary was united to the posterior wall of the uterus and the rectum; the *left tube* was affected in a lesser degree.

Case 3.—A primipara, *æt.* 25, was delivered in the hospital on the 12th July, 1854, after a tedious labor, of a living girl. In the night she felt suddenly severe pain in the abdomen, which increased; the belly became distended, hot, and acutely painful on moving; ten leeches applied; calomel and opium. Death early on the 14th.

Autopsy.—The abdominal cavity held a brownish flocculent pus. The lymphatic vessels of either side along the spermatic veins were much distended; the lymphatic glands enlarged; the larger lymphatic vessels contained pus and small purulent foci. The uterus was strongly contracted; muscular substance pale; vessels empty; the placental seat was on the anterior wall, two inches above the inner os uteri; the remaining part of the inner surface was uniformly reddened, without traces of exudation or suppuration. The tubes, especially the *left*, were much enlarged; the vessels of the fimbriae injected; the mucous membrane loosened, thick, and covered at the outer end with a creamy secretion. On the *left ovary* and tubes the veins were distended, and the lymphatic vessels were filled with whitish fluid.

Case 4.—A primipara, *æt.* 25, was delivered in the *Jena Hospital* on the 19th November, 1857, of a living boy. In the afternoon of the following day, she had pain in the abdomen, and took ten grains of calomel, and on the 21st ten grains more. Several stools followed the last dose. On the 22d, the symptoms had remitted. On the 23d, however, when seemingly quite well, she got out of bed, and, being surprised, leaped suddenly back again. Shortly after this, shivering and acute pain in the abdomen came on. On the 24th, the pain was especially severe in the *right side*. Twelve leeches applied. On the 25th, the abdomen was distended; everything was worse; twelve more

not applied. Bronchitis tympanitis appeared, and death ensued on the

Autopsy.—A large quantity of bloody purulent exudation flowed from the right half of the abdomen. The uterus, where placed in the right iliac fossa, was much enlarged. The ovaries were covered with exudation; both tubes at their outer ends were much distended with purulent contents. The inner surface of the tubes was covered with exudation.

A patient, aged 29, was delivered in the Jena Hospital of a living child on the 20th of May, 1861. She was quite well for the first 24 hours, excepting that the lochial discharge was at first and offensive. On the 2d day, the abdomen was painful and she had three stools. During the 3d and 4th days the diarrhea continued; she took an infusion of ipecacuanha with moderate effect. On the 5th the diarrhea had ceased, and she got up to dress; while stooping for this purpose she was suddenly seized with an acute pain in the abdomen, which increased from hour to hour. The severest pain was in the right side. It was concluded that the pain was caused by an escape of pus from the Fallopian tube, which about by the sudden compression of the abdomen in stooping, had become applied. Tympanitis, delirium, and collapse followed, and death the 10th.

Autopsy.—A considerable quantity of purulent exudation was found especially in the right half of the abdomen, and the principal focus was seated in the right iliac fossa. There was pus in the cavity of the uterus, but no pus in the vesicular or muscular wall. The right tube was much dilated, and contained a considerable collection of pus. The left tube was quite normal.

Dr. Martin insists upon the necessity of keeping women who exhibit any symptoms of metritis perfectly quiescent, so as to favor one of the terminations of tubal inflammation, which is closure of the finbrinated extremity. Professor Virchow, in some observations upon this paper, said it was a very difficult matter to determine the starting-point of a peritonitis. Every inflammation of the abdomen, no matter how arising, had by the law of gravity a tendency to involve the pelvic organs. Thus, in perforation of the stomach or processus vermiformis, inflammations of the tubes and ovaries occurred as much as in primitive disease of these organs. The clearing up of this question did not rest with anatomy, but with clinical observation.

ART. 131. *A new theory of the Cause of some of the Diseases of Infants and Puerperal Women.* By Mr. THOMAS BALLARD.

(*British Med. Journal*, Jan. 29, 1859.)

The proposition which Mr. Ballard endeavors to prove is—"That the instinctive act of sucking under circumstances unfavorable to the infant obtaining the food for which its system craves, is a fruitful source of disease to infants and puerperal women."

As regards infants, the exercise of fruitless and consequently prolonged and forcible sucking, is attended by an excessive reflex secretion of gastric juice, which acts upon the mucous coat of the intestinal canal, causing various degrees of injury thereto. The frequent loose and green stools of infants are the evidence of this process being in operation. A persistence of this morbid state causes many of those ailments which are usually attributed to teething, viz., erythema, eczema, convulsions, cerebral congestion, and hydrocephalus. And should the little sufferer escape death during infancy, it will afterwards be found to exhibit various forms of delicacy of constitution, attended frequently with defective appetite, as well as the imperfect development of some of the tissues of the body.

Thrush or muguet, with its attendant diarrhoea and erythema, was stated to depend entirely upon this cause. The parasitic fungus, discovered by Dr. Berg, is regarded only as an innocent accompaniment. As Rokitsanski says, "it is assuredly not the morbid agent."

The ill consequences of the vain but persevering attempts to obtain its food are not limited to the infant, but are propagated to the mother, as evidenced

in the excoriated nipple, the inflamed or suppurating mammae, after pains, feverishness, milk fever, and probably some of the worst kinds of puerperal fever. In the latter case, they act as the proximate or exciting cause; the constitutional or epidemic influences being the remote or predisposing causes only.

The basis of the argument is the physiological fact announced by Dr. Brown-Séquard, in his tenth published lecture, viz., "The excitation of the nerves of taste produces an abundant reflex secretion of gastric juice, and also a flow of bile and pancreatic juice in the bowels."

The act of sucking being *par excellence* the mode of exciting the nerves of taste, it was only reasonable to conclude that if this is exercised *excessively*, that the secretions will be poured out in great abundance; and practical observation corroborate this, inasmuch as the frequent stools of infants, together with thrush, &c., are immediately cured by arresting the unnecessary sucking.

The facts adduced in proof of the proposition (notes of cases occurring in Mr. Ballard's own practice, carefully kept for several years), and in my observations made by himself in reference to the subject, result in the following deductions:—

1. There is usually little or no milk secreted by the breast until after the third day after delivery; and that the common practice of putting the child to the breast before this period, and thus inducing several actions on its bowels, has led to the erroneous doctrine that the colostrum, or first milk secreted, is purgative.

2. The enlargement of the breast after delivery is of the nature of an erection or hyperæmia, and is not evidence of the breast having secreted milk. Repeated attempts to obtain milk under those circumstances generally resulting in some illness, either to mother or child, or both.

3. No case of fever had occurred where the breasts had not been over excited in the attempt either to obtain or get rid of the milk.

4. That the imperfect manner in which the act of sucking is necessarily performed by infants fed from a bottle fitted only with the skin of the calf's teat or a piece of wash-leather, thereby affording them no point d'appui by which they can fix the jaws and tongue in such a manner as to establish a vacuum in the mouth communicating with the cavity of the bottle, necessarily establishes that over excitation which results in frequent stools.

5. Any other kind of fruitless sucking is attended with the same results.

6. The particular kind of farinaceous substance mixed with the milk is of little importance, the mode of its administration being the key to the food appearing to agree.

7. The solid cork-teat, fitted with a very small vent-hole to a bottle otherwise air-tight, seems to be the best apparatus at present in use; such is the "*Bibron barbo*" the invention of an ingenious French mechanic.

8. The index to the health of the mother and child is the state of the child's bowels; if frequent and loose, one or other is, or will be, ill; if only one or two stools a day, both are pretty sure to be well and thriving.

ART. 135.—*Spontaneous Hemorrhage from the surface of a New-born Child.*

By Dr. WM. KENT, of Nantwich.

(*Lancet*, Nov. 6, 1858.)

CASE.—On the 13th of October, I was called upon to attend a patient in her confinement, and she was shortly and safely delivered of a fine boy, which was, as usual, placed in flannel, and laid upon the bed until it could be further attended to; but as it was necessary to remove it from where it was then lying, in order to put a little more covering on the patient, the infant was removed to another part of the bed, and at that time nothing at all was noticed with regard to it; but on the child being taken up a short time afterwards, for the purpose of dressing it, it was found lying in a pool of blood. My attention was, of course, immediately called to it. I saw, from the position of the child and the blood, that the hemorrhage could not be from the umbilical cord, nor, from

minute examination, could I discover that it was from the mouth, anus, or any of the usual outlets.

The child was dressed by the nurse, and she, after a short time, again perceived blood issuing through its clothes, when I was again sent for, the mother in the meantime being quite well.

On examining the child again, it could not at first be discovered whence the profuse hemorrhage proceeded, but, on a further examination, I found that it was from the minute terminations of the vessels on the surface, about and on the right hip, and with a magnifying glass the orifices, and the blood issuing from them, could be distinctly perceived, the appearance being very similar to slightly-chapped hands or skin.

A lotion of nitrate of silver—one grain to the ounce—was applied on lint, and the hemorrhage then commenced in the parts about the left groin, but not so copiously as before. The child, however, died from loss of blood in about eleven hours after its birth.

ART. 136.—Iodide of Potassium as an Antgalactic. By Professor ROUSSET.

Jour. de Bourdeaux, May, 1858; and *N. American Medico-Chir. Rev.*, Nov. 1858.

The troublesome milk-knots which tend to appear especially at the commencement of lactation, giving rise to fever, inflammation of the breast, and abscesses, indicate a diminution of the secretion of milk by therapeutic means. As the usual measures (emollient cataplasms, dieting, and laxatives) had frequently proved insufficient, the author tried the iodide of potassium. The results were as follows: The iodide of potassium occasions a considerable decrease of the milk, and in consequence prevents and removes milk knots, particularly if at the same time the child is not put to the breast. The milk returns quickly, if the medicine is not used any longer than two to three days; its effect is more decided if the dose does not exceed forty to fifty centigramm. daily. The secretion of milk can be prevented almost completely if the iodide of potassium is given on the first or second day after delivery. The author gives a full report of seven cases to confirm the above statements.

ART. 137.—Are Babies to be taught to Walk? By ———

(*How to Manage a Baby*, a tract; and *Sanitary Review*, Jan. 1859.)

"People talk about 'teaching babies to walk;' but babies do not need teaching, for they will be sure to get up and walk when their legs are strong enough, and it does them harm to do so before; in this, as in very many other things, babies would be all the better for being left to themselves. But this does not suit some mothers, who are in a hurry to see their children walk: such mothers cannot rest content without putting their children into leading-strings, or go-carts, or leading them with the hand. All that they generally get for their pains is the sight of their children's bandy legs and crooked ankles, caused by being forced to walk before their time. Who would be a baby?"

"But, though baby should not be hurried in walking, it should be allowed to keep moving all day long, while it is awake, for the limbs cannot get strong unless they are used. The best plan is, to put a piece of soft matting and a piece of carpet on the floor, and put baby down upon them to stretch, roll, and tumble about like other young creatures. If it has a ball or a rag doll to crawl about after, it will be 'as happy as the days are long,' and will, besides, be very little trouble, and be making its limbs strong, ready to walk by-and-by. It is a great pity to accustom a baby to be nursed, for it only does it harm, and gives the mother a world of trouble into the bargain. In the summer, it is a good plan to spread the matting and carpet on the grass in the garden, and put baby down on them, to use its limbs in the pure air and light. In short, wherever it is, and whatever it does, it should keep moving all the time. The birds, the beasts, the fish, and the creeping things are scarcely ever still five minutes together in the daytime. Moving brings life and health to all things, babies among the rest."

(B) CONCERNING THE DISEASES OF WOMEN.

ART. 138.—*On the Treatment of Mechanical Dysmenorrhœa by Incising the Os and Cervix Uteri.* By Professor SIMPSON.

(*Medical Times and Gazette*, March 12, 1859.)

For some years past Professor Simpson has thought that the best and speediest mode of cure in mechanical dysmenorrhœa, is to have recourse at once to dilatation of the os by incising it on both sides, for he found that the stricture or contraction was very apt to recur (just as so often happens with stricture of the male urethra) when the dilatation had been effected by sounds or spongetents.

"In order to understand the mechanism of this operation"—we quote from a clinical lecture—"just consider for a moment, what is the object which you wish to attain by your treatment. A married patient applies to you for the cure of obstructive dysmenorrhœa and its usual accompaniment, sterility. Now, knowing that the one condition as well as the other is comparatively rare in the case of women who have once borne children, what you want to effect is to bring a uterus that has never contained an impregnated ovum as nearly as possible into the condition of one that has. The occurrence of pregnancy once seems to bring the uterus into a condition favorable for its recurrence, although this may not be evident in ordinary cases where pregnancy goes on to the full term, and ends in the parturition of a living child, for then lactation comes in with its counteracting tendencies. But you can satisfy yourselves of the truth of the remark as a general principle, to which there are doubtless many exceptions, by making the necessary observation in the case of mothers who do not nurse, and some of whom in consequence bear a child almost annually; and also in the case of women who are frequently aborting, for in them you will find that so soon as the immediate local and general effects of the abortion have passed away, impregnation very often occurs again immediately; whereas in the first instance it may not have supervened for some months or more after marriage. And the only appreciable difference in the state of the uterus in such a patient at the time of marriage and after parturition or after a miscarriage is, that at the latter period the os and cervix uteri are less contracted. A patulous condition of these parts seems to a limit of the more ready entrance of the spermatic fluid, and so to favor impregnation. Now, then, how can we best bring the uterus of a female who has never borne children into a condition resembling the uterus of one who has aborted or borne living children? If you look at the os tinea of a once gravid uterus, such as I now show you, you will



Sketch of the virgin os uteri

Sketch of the os uteri of a woman who has borne children

perceive it to be of an elongated oval form, the long axis of the opening being directed from side to side, while the orifice of a virgin uterus, such as this, is much smaller and more nearly circular. The os of the former kind of uterus

is not only wider than that of the latter, but its form is different; and while, by means of bougies or sponge-tents, you may render the opening of the virgin uterus for a time sufficiently patent, you cannot by such means impart to it that longitudinal form which seems to counteract its tendency again to contract on removal of the dilating force. But all this you can effect at once, rapidly and certainly, by making incisions of sufficient depth into both sides of the cervix uteri. To make such incisions, you require to introduce this instrument or metrotome as far as the os internum, where the incision begins—at first quite shallow, and then make it deeper as the instrument is withdrawn, till at the os externum the cervix is cut across in all its thickness. An incision of this nature into both sides of the cervix makes its canal wide and pyramidal in form, so as easily to admit the finger; and in healing leaves the orifice more like that of a uterus from which an impregnated ovum has been expelled. The first patient on whom I performed this operation, in 1843, was a lady of high rank, who had been married for several years, without having had a family, and who used to suffer at each menstrual period from most excruciating pains. She had heard about the dilatation, and had got up the whole subject—anatomy and all—and came to Edinburgh with the view of obtaining relief by that means. I explained to her that the process would occupy a considerable period—two months or more, when she at once said that the time was too long, and that unless she could be cured by some speedier method she would not submit to be treated at all. I then told her that I had often thought of dividing the cervix in such cases; and that though I had never yet put it in practice, I believed it would be both a speedy and a most effectual means of procuring relief. She readily comprehended what was meant, and seeing the feasibility of the proposal, at once said that I must perform the operation on her as the first patient. I made the incisions as I



Front view of the uterus. The dark triangular portion on either side between a and b is intended to show the extent to which the incision should be made for the relief of obstructive dysmenorrhœa. It is, however, to have been carried more deeply to the roof of the roof of the vagina on both sides.

have told you, but with a very imperfect instrument, and the patient soon was perfectly well, and about four months afterwards I heard that she had become pregnant. I was afraid that the cicatrix might present some obstruction to parturition, and so was Sir Charles Locock, who was to attend her in her confinement in London. I was waiting very anxiously to know what effect the operation might have had on the labor, when a letter from Sir Charles relieved me from my anxieties, for he told me that the labor had not only gone on quite favorably, but had even been remarkably easy for a first confinement. Since that period I have performed the operation in a very great number of cases. Last week, for example, I had recourse to it in not fewer than five cases. In fact, it has come with me to be the usual mode of treatment for all cases of dysmenorrhœa depending on contraction of the os or cervix uteri.

“How are the incisions to be made? The instrument which I use for the purpose is a sort of concealed bistoury such as I now show you. The patient being placed on her left side, the point of the instrument is passed up to the os internum, and when there is a stricture at that point—which, however, is rarely the case—a slight notch is to be made there on either side. This, I say, you will

rarely find it necessary to do; what you most commonly require is to incise and open up the canal of the cervix and the external orifice. To do this you must introduce the instrument nearly to the internal os, and then, as you withdraw the instrument press out the blade and cut through the cervix on one side in such a way that at first only the internal fibres are divided, and the incision, as it becomes lower, becomes also always deeper till the point emerges somewhat below, where the mucous membrane of the vagina becomes reflected

on the cervix, and below this point the portio vaginalis uteri is divided in all its thickness. You then turn round the instrument, and make a similar incision on the other side. When you have thus divided either side you will feel that a conical opening has been left, the base of which includes all the thickness of the portio vaginalis uteri. The canal may contract to some degree afterwards when the wounds heal, and to prevent this I have sometimes made use of spongetents or intra-uterine bougies. But the introduction of these instruments in such cases causes pain and irritation of the raw lips of the wound; and you will find that by opening up the wound every two or three days for a time with the finger, you can effectually prevent all union by the first intention, and in this way provide against the chances of a recurrence of the stricture; or, you may touch the corners of the wound with a piece of nitrate of silver with a like good result. Hemorrhage may sometimes follow division of the cervix, more particularly if you cut too deeply in the upper portion of it, where you run the risk by so doing of wounding some of the veins of the plexus uterinus; and it ought always to be guarded against by plugging the vagina immediately after the operation with some pieces of sponge. In some few instances the hemorrhage is pretty smart; but I have never seen it occur to any very alarming extent. Inflammation may sometimes be set up and spread to the surrounding loose cellular tissue; and though this rarely goes on to any dangerous extent, yet you may expect sometimes to meet it, and you must always be prepared to treat it, and treat it according to the principles which I shall have to explain hereafter when I come to speak of pelvic cellulitis in general. Attended with such rare and slight risks, the operation is a very safe one; and there is only this further to be observed in connection with it, that unless all the fibres are fully divided, there is sometimes a chance of the wound healing too rapidly, and the stricture being reproduced. But altogether, I believe I am entitled to say, that there are few operations in surgery so perfectly simple in their performance, and so entirely satisfactory in their results, as division of the cervix uteri in cases of obstructive dysmenorrhœa and sterility."



The hysteroscope or metemeter. To allow of the protrusion of the blade *a* to the desired extent the rod in the handle must be screwed out to the proper distance.

ART. 139.—On Diseases of the Breast. By M. VELPEAU.

(*Gaz. Méd. de Paris*, No. 42, 1868.)

In presenting the second edition of his work on 'Diseases of the Breast,' to the Académie des Sciences, M. Velpeau observed that he had met with 807 cases in private and hospital practice, in addition to the 2,000 upon which the first edition was based; 200 occurring during each of the years 1864-'57, with a surprising regularity. An analysis of these 807 cases (not taking into account a large number of cases which only appeared casually at the hospital consultations) shows them to consist of 407 cases of benign affections, and 400 cases of malignant disease or cancer. The 407 were thus distributed: Abscess, 116; Hypertrophy, 121; Adenoid, 130; Neurosis, 40; = 407. Of the 400 cancers, the right breast was affected in 158, the left in 231, and both in 11. The ages were from 30 to 40 in 29; from 40 to 50 in 95; from 50 to 60 in 119; and from 60 to 70 in 49—the other patients being either younger or older. Among 163 cases, 60 were unmarried, 28 married and childless; 50 had borne but not suckled children, and 60 had suckled their children.

The above statistical account agrees with that already given in his first edition, in showing that the left breast is much more exposed to cancer than

the right, and that it is an error to suppose cancer to be most frequent between the ages of 40 and 50, or that married women are alone liable to it. Another error is to attribute diseases of the breast to neglect of suckling; inasmuch as it is found that of 110 cases of cancer in women who had borne children, 60 occurred in those who had, and 50 in those who had not, suckled. What has been said with respect to the influence of general health, the constitution, regimen, grief, emotions, disease of the heart, &c., is equally inexact. "I have met with cancer in the robust and sanguineous temperament, as well as in the debilitated and lymphatic; in tall, strong, dry subjects, as well as in those whose tissues were fat and soft; in the gay and careless, equally as in the delicate, nervous, and sensitive. The resolute and calm are not more exempt than are the melancholy, irritable, and restless. It is met with in rich and poor, in the well-conducted and temperate, as in those who commit every excess or undergo every privation. It spares women of no country."

In respect to histological researches, M. Velpeau observes: "I have in this edition endeavored to examine carefully what modern micrographists have taught us; for at one time I too entertained the hope that the intimate nature of cancer would be unveiled through the intervention of the microscope. This now must be acknowledged to have been an illusion. By the aid of this precious instrument there have been discovered pathological products, elements, or principles, scarcely suspected before, and their molecular composition has been far more precisely exhibited; but the malignity of cancer remains none the less a deep mystery, just as impenetrable as regards its cause and its material reason as before."

M. Velpeau believes that his work indubitably proves—1. That true, well-characterized cancer, left to itself or treated solely by pharmaceutical or hygienic appliances, is never cured and always kills—these practitioners who maintain the contrary being deceived or laboring under an illusion. 2. That we may cure radically and without relapse a certain number of true cancers by means of the knife, caustics, &c.

ART. 140.—*On the use of Iron-thread Sutures and Splints in Vesico-vaginal Fistula.*
By Professor SIMPSON.

Medical Times and Gazette, Dec. 4, 1858.

"In the last three cases," says Professor Simpson, "I have placed and fixed around the wound, for the purpose of steadying and consolidating its walls, a slender oval splint made of the same iron wire as the sutures are formed of. The vesico-vaginal septum is a very mobile wall or structure, with muscular tissue in it, which, in some cases, after the operation, is constantly attempting to act, as seen in the twisting, and sometimes in the expulsion of the curved catheter of Dr. Sims. Hence it has appeared to me always a matter of high moment, as regards the success of this operation, to have some means of preventing the lips of the wound being moved by these muscular contractions in the vesical walls; or, in other words, to have some means of consolidating, as it were, for the time being, the edges of the wound, and the parts situated more immediately around it. A simple suture or suture, or a series of them, is liable to allow the wound slightly to gape under any movements in its edges. If you will try the experiment upon an opening cut in a piece of thickish leather or the like, and closed by simple stitches, you will see the truth of this remark, if you afterwards move the edges of the opening in imitation of the muscular contractions of the bladder. Dr. Bozeman's ingenious button-suture effectually prevents the disturbing effect of such movements lengthways, or in the longitudinal direction of the wound. But it has no power to prevent the evil effects of such movements if they occur crossways, or transversely to the direction of the wound. The structures on which the sides of his button or shield are placed are not restrained from movement by the presence of the button; and may (as I saw in the second case) move quite away from it, so far endangering the re-opening of the lips of the wound by the mobility which is thus permitted.

"The slender, oval, iron-thread splint which I have employed in the last three cases, overcomes, as I fancy, this difficulty, as it so far consolidates the

lips of the wound, and, indeed, all the parts included within the oval space, as to prevent them moving or being moved, either in a longitudinal or transverse direction. It is made by twisting ten or twenty wires of the size already indicated into an oval circlelet or ring, capable of including the lips of the fistula-wound, and a few lines of the vesico-vaginal septum on either side within its concavity. It may be made, of course, and that quite readily, of any special shape or size that may be required. By a common borer, two, three, four, or more small openings can be made among the wires on each side, so as to correspond to the number of sutures used. After the edges of the wound are brought together by the adjuster of Dr. Bozeman, or any corresponding instrument, the splint is fixed by passing first the iron threads of one side of the wound, and then those of the other side, through the corresponding holes in the splint; afterwards sliding it down along the threads to its place; accurately fitting and adapting it there to the parts by the finger, a process which the flexibility of this light splint greatly facilitates, and ultimately fixing the sutures across it, tying or twisting them over the lower bar of this little apparatus. When duly adjusted and fastened, it appears to me to compress and consolidate the lips and immediate vicinity of the wound in a way which the plans previously proposed have not so completely effected. Besides, it is easily made, easily applied, and at last easily removed; for by dividing the wires below its lower bar, and turning back the splint, and then withdrawing it with dressing forceps, the suture-wires come out along with it.

"Permit me to add, that I have found a tubular or hollow needle very greatly to facilitate the introduction of the metallic threads. After the needle is passed through both lips of the wound, the iron wire is pushed on through the tube or perforator in it, and seized with a pair of long forceps as it protrudes from the upper end of the needle. The needle is then withdrawn and the wire left."

ART. 141.—A Note on Ovariectomy Operations. By Mr. —.

Medical Times and Gazette, Jan. 1, 1859.

During the past year twelve cases, in which ovariectomy was either attempted or performed, have been put on record by London surgeons. As far as the writer is aware, they comprise all that have occurred, during that period, to the following surgeons: Mr. Brown (2), Mr. Childs (1), Mr. Erichsen (1), Mr. Hutchinson (4), Mr. Wells (4). We may, therefore, fairly group them together. Of the twelve, eight recovered and four died, seven are still living, and of these six are, as far as is known, in excellent health. The one which has ended in death, after having recovered from the operation, is a case in which the tumor was not removed. In two cases the tumor was not removed, one of the patients dying a fortnight afterwards, and the second within four months. In eight cases the end of the peduncle was brought out externally, and of these six recovered. In two, the old practice of leaving the end of the peduncle and the ligatures in the abdominal cavity, was adopted, and of these one recovered and one died. In all the cases, the tumors were polycystic, and in several they contained colloid material. In only two were no adhesions encountered, and in several very extensive and firm bands had to be broken through. When we add that the cases have not by any means been selected ones, and that in several instances the patient was in very much reduced health, it may readily be granted that this summary offers a very encouraging contrast with the results of the old method of operating.

ART. 142.—Report on the cases of Ovariectomy that have occurred in Germany. By Dr. AUGUSTUS SIMON.

(Sanzoni, Beiträge zur Gynäkologie, Bd. iii, pp. 93-122; and Medical Times and Gazette, Feb. 19, 1859.)

The statistics of ovariectomy hitherto published in Germany have been mixed up with English and American cases; and the object of this paper is to give an account of those operations which have been performed in Germany alone.

As the operation has only become at all frequent there during the last ten years, it is still possible to obtain an exact account of the great majority of the patients, both as regards the operation itself, and the ultimate fate of the individual. To make this as complete as possible, not only has the author referred to all the published cases, but has opened up a correspondence with the surgeons of all the chief towns of Germany. In this way he has collected sixty-one cases, twenty-three of which have not hitherto been published; and these must embrace the greatest part of those which have occurred, although it is still possible that some may have escaped notice. All foreign operations have been rigidly excluded, even when they have been performed by Germans in adjoining countries. The results of these researches are set forth in tables extending over from twenty to thirty pages. In these he gives not only the particulars of each operation as regards the mode of execution, the presence of adhesions, and the condition of the tumor; but also narrates the history of the patient both prior and subsequently to its performance, as also her later condition, whenever an account of this has been obtainable. Some of the cases, in spite of every care, remain defective in certain of these particulars.

The aim of the tables is to bring out as distinctly as possible the advantages or disadvantages of the operation; and the better to do this, the cases of ovariectomy have been arranged under three divisions, viz., 1st, those in which the operation has been followed by a radical cure; 2d, those in which death has been the result; and 3d, those cases in which, although recovery has followed the operation, the advantage has proved transitory, doubtful, or non-existent. In this last category not only have been included those operations, which begun, have had to be abandoned on account either of the firmness of adhesions or the errors of diagnosis; but others in which, although the patient has recovered from a partially or completely executed ovariectomy, yet has died eventually from after-consequences of the same, or from the effects of the original disease. Thus, a case of Martin's has been so placed, in which the patient died eight months after a successful extirpation of a colloid cystoid, owing to cancerous formations in the pancreas, lymphatic glands, and the lungs, which the operator himself regarded as connected with the original malady. So, also, with regard to a case of Küchenmeister's, wherein ovariectomy was left incomplete on account of the firmness of the adhesions, the patient recovering from the effects of the operation, but dying in three quarters of a year from the rupture of a secondary cyst. Operations like these cannot be set down as radical cures, but must be regarded as of only transitory utility, if of any utility at all, for the prolongation of life. Although these patients felt themselves entirely well for some time after the operation (in Martin's case for four months), it is very questionable whether they would not have lived longer still had mere palliative punctures been resorted to. Under the same category must in future be placed those cases in which, after complete recovery from the operation, death still eventually takes place owing to the persistence or subsequent formation of abdominal fistula; those cases in which, very soon after the extirpation of medullary sarcoma of the ovary, cancerous formations appear in other organs; and finally, not only those cases in which secondary cysts spring up after incomplete extirpation, but also those where, after the extirpation of one diseased ovary, the cysts existing simultaneously in the other forthwith increase and assume a similar threatening aspect. Each of these three primary divisions of the cases, derived from the issue of the operations, are formed into three subdivisions, dependent upon the nature of the operation and condition of the disease, viz., 1st, cases of ovariectomy completed; 2d, cases in which ovariectomy was attempted, but only incompletely performed or entirely abandoned on account of the strength of the adhesions; and 3d, cases in which, after the abdominal cavity had been opened, the diagnosis was found to be erroneous. This last subdivision, which does not strictly belong to the statistics of ovarian tumors, has nevertheless been retained, because, in judging of the danger of an operation, errors of diagnosis frequently cannot be avoided, and their consequences must not be lost sight of. It is not indeed likely, at the present period, that Dohlf's error, committed in 1838, of seeking to perform ovariectomy, where no tumor of the abdomen

existed, will be repeated; but it is continually happening that tumors of the uterus, retro-peritoneal tumors, &c., are confounded with ovarian tumors.

It is evident that the bearing of the statistical tables must be more exact upon German practice than those hitherto published in which English and American cases have played the chief part. In these we have only the results of the practice of German surgeons (some of the most distinguished among these), whose capability of forming the diagnosis and executing the operations can be appreciated. But it is believed that these new statistics are not only of more measurable value to the German practitioner than any that have preceded them, but may also serve even in other countries as a basis for forming a judgment concerning ovariectomy. If the tables already published comprise hundreds of cases, while these only related to sixty-one cases, yet the former were open to various important sources of error, which in these it has been sought, as far as possible, to avoid. Without referring to instances in which cases have been entered both under the names of the operator and the reporter, we may advert to two sources of error which must exert a good deal of influence on the conclusions to be drawn. The chief defect is, that while cases which terminate favorably are made as public as possible, many cases having an unfortunate issue have been unrecorded. Of course it would be entirely unjustifiable for an operator to publish his successful and conceal his unsuccessful cases. But how many operators have only met with unsuccessful cases, and how many, after having published successful cases, have later met with only reverses! A great number of such cases would never be published at all; for while, on the one hand, we can scarcely blame an operator who has met with unsuccessful cases, if he wait before publishing them until he has others of a more fortunate character to place by their side; so, on the other hand, ovariectomy has become so very common an operation, especially when unsuccessful, that an operator would incur the charge of tiresomeness if he published cases of failure of the operation, unless these exhibited special circumstances of great interest. How important these considerations are, however, in weighing the conclusions to be drawn from published cases, may be judged by examining R. Lee's statistical account, published in the thirty-fourth volume of the 'Medico-Chirurgical Transactions.' With all his sources of information, he was only able to indicate 51 operators, who had performed 162 operations; but in a country where practitioners are numbered by thousands, in which ovariectomy has been recognized as a permissible operation for twenty or thirty years, and where it has become so common that Clay has performed it 69 and Bird 31 times, can we believe that this operation, which neither requires dexterity acquired only by long practice, nor complicated instrumental apparatus, has only been performed by 51 persons? This is quite incredible; for in Germany, where the operation still has many and important opponents, there have been 34 operators for 61 operations. A second important source of error, vitiating the early statistics, consists in the enumeration among the cured cases in which the operation had to be abandoned, either on account of the adhesions, or the faulty diagnosis. Now, although these women recovered, inasmuch as the disease still remained, and the patient had incurred the great danger due to gastrotomy, these cases should be regarded not as recoveries from, but failures of the operation. It is true that Lee has sought to avoid this error, and abstracts 60 such cases from the 162 operations; but he found it impossible to give an account of the latest condition of these cases set down as cured. These two sources of error Dr. Simon has taken every pains to avoid; and he believes his statistics claim much more confidence than Lee's, which neither comprised all the cases that had occurred, nor sufficiently controlled those they did comprise. These statistics also show that in Germany errors of diagnosis have not been of such frequent occurrence—operations not having been undertaken with the same rashness as in England and America. While in 60 of Lee's 162 cases, the operation had to be abandoned, either on account of adhesions or errors in diagnosis, this was the case in only 17 of the 61 German cases.

The following is the summary of the results, as specified in the author's detailed tables. Of the 61 patients upon whom ovariectomy was either executed or attempted, 44 (72 $\frac{1}{2}$ per cent.) died from the immediate effects of the opera-

tion, in 5.83 per cent.) it proved useless, or of only transitory benefit, although the patients recovered; and only in 12 patients (19.3 per cent.) was a radical cure obtained. (The operation may even have been more unfavorable in Germany than here represented, as, notwithstanding the search made for them, other unsuccessful cases may not have been brought to light.) The operation was completely executed in 44 instances. Of these 44 there died 32 (72.7 per cent.) from the immediate effects of the operation; 1 died eight months after in consequence of cancer in other organs; and 11 (25 per cent.) were radically cured. The operation was attempted in 15 cases, but on account of the firmness of the adhesions had to be abandoned or only partially performed. Of these, in 1 a radical cure followed; in 3 no advantage, or very transitory advantage, resulted; and in 11 death ensued as the immediate consequence of the operation. In 2 cases the operation was attempted; but the diagnosis was at fault—one of the patients died and the other recovered.

These results are far less favorable than those which have been derived from statistics previously published; and while Feek and others place the danger of ovariectomy upon the same line as herniotomy and amputation of the thigh, it is according to the above figures more dangerous to life than the Cæsarean section, which is, according to Kaiser, attended with a mortality of 63 per cent., and, according to others, of about two-thirds of those upon whom it is performed.

In a postscript, Dr. Simon brings the cases up to 64 in number. In these a radical cure was effected in 12, in 6 the operation was at most of transitory utility, and in 46 it was followed by death.

ART. 143—*A New Method of Examination in suspected Cystic Disease of the Ovary.* By Dr. GRANTLEY HEWITT, Physician to the British Lying-in Hospital.

(*Lancet*, March 12, 1859.)

There are many questions which the physician or surgeon anxiously puts to himself when called upon to administer relief in cases of presumed ovarian cystic disease, and more especially the question which he has to consider as to the particular method of treatment to be adopted. Thus a case of considerable enlargement of the abdomen may come before us in which the shape of the abdomen, the nature of the visceral displacement, the general symptoms and previous history of the patient, render it tolerably certain that a tumor connected with the ovaries is present. But it is extremely desirable that we should also be able to learn the exact nature of the ovarian tumor, and the presence or absence of complications, more especially if we have to decide whether ovariectomy or simply paracentesis and injection should be resorted to. Dr. Hewitt proposes, by means of an instrument which he names the "ovarian sound," to probe the interior of the cavity in which the fluid is contained. The instrument to be thus used consists of an ordinary canula and trocar; but the canula is provided with an India-rubber diaphragm having a small perforation in its centre through which the trocar passes. The sound is a slender rod, composed of the same metal as the ordinary uterine sound, and therefore, flexible, graduated in inches and fourteen inches long. It is provided with a smoothly rounded extremity, and is fixed in a handle of convenient size. The trocar and canula having been passed through the abdominal wall, the trocar is withdrawn; the sound is then introduced through the canula before the contents of the cyst have been allowed to escape, and the operator examines the interior of the cavity leisurely and safely.

ART. 144—*Rupture of an enormous Ovarian Cyst into the Peritoneal Cavity, and permanent cure.* By Mr. C. FARRAR.

(*British Med. Journal*, Oct. 23, 1858.)

CASE.—"Mary B., æt. 36, a tall, spare woman, apparently pretty healthy, about eleven years since, being at that time five months pregnant, fell over a rough on the left side, and from the injury was confined to her bed for some weeks. After her delivery it was found that the abdomen had scarcely dimin-

ished in size, and a large fluctuating tumor was detected in the left side. For several years the tumor steadily increased, until it completely distended the abdominal cavity, and acquired the magnitude which it had at the time of the occurrence of the accident.

"About eighteen months since she stumbled and fell upon the abdomen on a brick floor. She became collapsed, and had violent rigors; and in a few hours inflammatory fever set in, accompanied with acute abdominal pain. She lost flesh rapidly, was unable to lie down, and in a few days enormous anasarca of the legs and body up to the waist came on. The urine was nearly totally suppressed, and so severe were the symptoms that no hopes were entertained of her life. In about a fortnight she began to improve, and passed daily a large quantity of turbid urine. At the same time the anasarca rapidly disappeared. One month from the date of injury the tumor had nearly disappeared.

"I examined her fourteen months after the fall. She expresses herself, with unbounded delight, as being perfectly well, and able to walk any distance, which she had not done for some years. On examining the abdomen, there are merely the hardened pedicle and sac of the former tumor to be felt, and these appear to be rapidly diminishing in size. Of course there is a large quantity of pendulous skin upon the abdomen, which time alone will reduce to its proper form and size.

"Her general health has improved very much. She has gained flesh, and has lost the wan appearance that she had previously presented."

(c) CONCERNING THE DISEASES OF CHILDREN.

ART. 145.—*Tepid injections in the treatment of Non-congenital Phymosis of Infants.* By Dr. Wm. C. ROGERS.

(*American Med. Monthly*, Oct. 1856.)

"I have been uniformly successful," says Dr. Rogers, "in treating the non-congenital phymosis of infants, depending upon an accumulation of the secretion of the *glandula Tysoni* within the prepuce, by tepid injections repeated two or three times a day *pro re nata*.

"By cautiously introducing the point of a glass ear-syringe, previously oiled, within the orifice of the swollen and infiltrated prepuce, and by making gentle pressure upon the same in such a manner as to steady the instrument, and reduce still further the orifice of escape for the contained and injected fluids, I have in many instances washed out from about the glans penis a large quantity of milky secretion, in some cases entirely fluid, and in others consisting of numerous crusts or scales floating in thick purulent mucus. The removal of the cause, the acrid secretion, has been invariably followed by a subsidence of the disease, and in no single instance have I been compelled to use the injections more than three times before the cause was entirely removed.

"I find no mention of this form of this affection in any of the standard works, and of course nothing on the subject of its treatment, and therefore lay the above before the profession, who will take it at its worth, and treat it accordingly."

ART. 146.—*On Enuresis in Children.* By Dr. HAWSON.

(*Amer. Jour. of Med. Sciences*, Oct. 1856.)

Dr. Hawson recently read a paper upon this subject to the Philadelphia College of Physicians, founded on close observation of a great many cases occurring among the children of the House of Refuge. At the time he was consulted by the managers 78 boys out of a population of 292 were the victims of the habit, but of these 15 remained but a short time under observation, leaving 63 cases, all the particulars of which were most elaborately inquired into, and registered during the five months they remained under the author's observation and control.

The house contained a white and black division, and the affection was found

to prevail in the proportion of 1 in 7 among the white, and 1 in 2.7 among the black boys—it being also most obstinate and inveterate among these last. The average of those affected was 12½ years, the oldest boy being 18, and the youngest 7. The general appearance of the health was good in 34; 7 boys were very stromous, and 15 were thin and pallid. In 4 of the 6 worst cases the boys were stout and hearty. Of the 63 cases, 24 suffered from ascarides, and this was the case in 5 out of the 6 worst cases; in 26 there was but one alvine defecation *per diem*, and 26 boys suffered from constipation: 27 of the boys passed urine two or three times a day, as well as on rising and on going to bed; 28 passed it more frequently in the day, and four had no control over the bladder in the day. In all the cases the urine was acid, and its specific gravity was 1016 among the whites, 1020 among the blacks. The prepuce was elongated either from pulling to relieve irritation or from masturbation in 36. There were 18 who confessed to masturbation, and in 33 others there were good reasons for suspecting the practice—there being only 12 out of the 63 to whom no such suspicion attached. The influence of diet was observed by the enuresis especially occurring on certain nights; and atmospheric vicissitudes seemed to exert some influence, as a sudden fall in the barometer or thermometer during the night always seemed to increase the number of cases. Dr. Hewson publishes a curious table, exhibiting the influence of these variations during a period of forty-nine days.

For the treatment of the disease, the bromide of potassium was first tried in doses of 2½ to 3 grains *ter. in die* in all the cases; and that on account of its anaphrodisiac effect, seeing that so many of the cases seemed connected with masturbation.

In nine cases of the sixty-three, a complete cure was effected within a week, but in three of these there was no reason to suspect masturbation. In four other cases material benefits resulted; but in the remaining fifty cases none whatever attended its use. The chloride of iron, together with the cold douche to the back, was next tried, but in vain; and cantharides was resorted to with as little success. Finally, to each boy who had constipation was given magnesia, and turpentine, and carbonate of soda were ordered for those suffering from worms; and to all tinct. belladonnæ was administered. A dry supper of bread alone was allowed, and the cold douche was applied. Each boy was made to rise and pass urine an hour after retiring for the night. Under this plan the number of cases diminished with astonishing rapidity.

While the affection had been so prevalent among the boys of the institution, only two of about eighty girls suffered from it, and only seldom. Their average age was somewhat greater than that of the boys; and their general health and condition far better. Their diet was the same as the boys, and their *morale* no better.

Dr. Condie observed that the conclusions arrived at by Dr. Hewson were very similar to those which resulted from an investigation he himself had made into the subject, but under circumstances less favorable for accurate observation. Contrary to what he had anticipated, he found that incontinence was much more common in boys than in girls; and, as far as his observation went, it was less frequent among children at home than among those congregated in public institutions, boarding-schools, &c. In some cases he had found the incontinence continuing during the twenty-four hours. It occurs more commonly in children badly brought up, who had been neglected in both their hygienic and moral training. In some cases it appears to be the result of a careless, lazy, filthy habit, calling for cautious discipline; but in the majority of cases it is the result of causes entirely beyond the control of parents or children. Dr. Condie found belladonna the best remedy; he frequently combines it with chalybeates, as the enuresis seems frequently to be connected with a cachectic condition, or with symptoms indicative of an impoverished condition of the blood. When the incontinence occurs in the day also, he has employed *nux vomica* or strychnia. In one point his observations differ from those of Dr. Hewson, viz., the state of the urine; for in thirty-two cases in which this had been carefully examined, the urates and uric acid were found deficient, and there was an excess of the watery portion.

REPORTS
OF THE
PROGRESS OF THE MEDICAL SCIENCES.

January—June, 1859.

THE intention of the following Reports is to pass in review the principal additions to each department of Medical Science which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

I.

REPORT ON PRACTICAL MEDICINE.

1. *Report of the Lancet Sanitary Commission on Diphtheria; its History, Progress, Symptoms, and Treatment.* 'Lancet,' Jan. 15, et seq. 1859. Pp. 32.
2. *Observations on Diphtheritis.* By WILLOUGHBY WADE, M. B., T. C. D. 1858. Pp. 32.
3. *An Essay on the History, Pathology, and Treatment of Diphtheria.* By EDWARD COPEMAN, M. D. 1859. Pp. 47.
4. *Diphtheria; a Lecture delivered at the Norfolk and Norwich Hospital.* By W. H. RANKING, M. D. Cantab. With a colored engraving. 1859. Pp. 30.

At rare intervals the routine of medical practice and opinion is disturbed by the appearance of diseases, which either, like the meteor now recently departed from this hemisphere, seem to revolve in some given orbit, and to reappear after undetermined periods of time, or which break suddenly upon us with phenomena so foreign to recorded experience, as to compel us to the conclusion that we have to do with what to us is a new disease. Such was malignant cholera, and such is believed to be the disease known as diphtheria.

In pronouncing the opinion that diphtheria is a new disease, we wish it to be understood that we refer only to this country. That it has existed and been described in other countries since 1829 is undeniable, and, as we shall show by reference to the able Report at the head of our list, it has even been probably known to far more remote ages. The very fact of the suddenness with which it appeared in this country, the novelty of its characters, and its alarming mortality, have not failed to gain for it a great amount of attention, and in addition to the Report alluded to, it is undergoing a formal and authorized investigation from which we are justified in anticipating the best results.

The 'Report of the Sanitary Commission,' published in the 'Lancet,' will first engage our notice. It leaves little to be desired either as regards the general history of the disease, or in the account of its progress in this country. In his introduction, the author expresses his belief, in which we entirely concur, that diphtheria "is a disease until lately unknown to the practitioners of this country, and not formally described by our progenitors." He also notices its seeming alliances to scarlatina, but recognizes at once that there are lines of demarcation as decided as those which exist between certain varieties of intestinal flux, such as diarrhoea, dysentery, and cholera. He further states, that although new to this country, it has been, as we have before said, long known in France, and that Bretonneau, who was one of its first modern illustrators, has found reason to believe that it was not unfamiliar to Aristotle. There are likewise some other authorities mentioned by the reporter, who are supposed to have described diphtheria, among whom may be mentioned Macrobius (A. D. 38), Rosen, who wrote on the occurrence of an epidemic in Sweden, and Bell, who speaks of its prevalence in America in 1813. To Bretonneau, however, we are indebted for the most succinct account of the course and symptoms of the disease, and it is from his writings that most of the more recent monographs on the malady have been compiled.

In the continuation of his historical survey of diphtheria, more especially as it declared itself in this country, the reporter remarks how impossible it is to associate its origin with any known climate or meteorological laws. As he observes, its ravages were not confined to ill-ventilated barracks and cottages, and crowded thoroughfares, but were extended over open hamlets and other

well-aired localities. Vicissitudes of heat and cold, moisture and dryness, conduced no more to the explanation of its appearance, than differences in locality. Still, and with propriety, he lays considerable stress on the presence and absence of those conditions which seem favorable to the production of zymotic diseases in general, and from which diphtheria is not exempt, though it is plain that he looks to some superadded cause for its origin, the above condition being simply adjutant to its invasion and progress.

The important question of contagion is answered by him strongly in the affirmative, and he quotes some cases which seem to prove the fact beyond dispute.

A very considerable as well as interesting portion of this Report is occupied with the history of the rise and progress of diphtheria in this country. It seems first to have been noticed in 1857, appearing in the southeastern counties, and described at that time by Mr. Rigden, at Canterbury. During the winter of 1858 it appears to have continued with unabated severity, invading the county of Surrey, and spreading to its original seat in Kent. It also soon showed itself in Middlesex, Northamptonshire, and other of the mid-land counties. In Suffolk and Norfolk it has been especially virulent, more particularly in the neighborhoods of North Walsham, Sturham, and Aylsham.

The reporter, while he admits that these various epidemics were essentially the same in whatever district they occurred, expresses his belief that three forms of the disease might be distinguished, all, however, identified by one pathological phenomenon, the false membrane. Beneath this membrane the mucous tissue is generally intact, but cases are mentioned in which distinct ulceration is said to have existed. This, we may say, *en passant*, is quite opposed to our own experience, unless solid caustic had been previously applied, and to the escharotic action of which we consider it to be due. Of the microscopic characters of the membrane, the reporter states that the elements usually found are molecular particles, epithelium-scales, and pus-globules. The development of the *oidium* he justly considers to be accidental, and in no way implicated in the causation of the disease.

In his account of the treatment of diphtheria, the reporter carefully reviews the methods generally adopted, and his conclusions for the most part agree with the opinions of those who have had much experience of the disease, viz., in the condemnation of solid caustic, the advantage of less powerful local applications, and the use internally of muriated tincture of iron. The only point on which we are at issue with him is in his recommendation of tracheotomy. Neither *a priori* reasoning, nor the results of experience, will, in our opinion, justify us in the anticipation of any favorable results.

—Dr. Wade's brochure treats entirely of the history and symptomatology of diphtheria, the treatment being left for future publication. The work is chiefly remarkable for the mention of albuminuria, as associated with the disease, and having some specific connection with it. The fact of the frequent occurrence of this pathological condition requires verification, but that it is occasionally met with there can be no doubt, both from the author's observations and the record of cases at this time publishing in a tabulated form in the 'British Medical Journal.' Dr. Wade's description of the disease does not differ from that of the French writers from whom he quotes, but his work may be consulted with advantage, so far as it goes, by those who are looking for a concise and well-written summary of the signs of the disease, and their pathological significance.

—The pamphlet by Dr. Copeman gives also a good account of diphtheria, as regards its history and symptoms, but it is mainly a translation of Rilliet and Barthez, several pages being occupied by an almost verbatim translation of those authors. Dr. Copeman does not appear to write from personal experience, which, as the disease has been rife in Norfolk, we should have supposed he would do.

—Dr. Ranking's brochure is founded on a lecture given at the Norfolk Hospital, and has the merit of giving a lucid description of diphtheria, from actual observation of the disease. Its value is also enhanced by a faithfully drawn and colored engraving of the throat, exhibiting the peculiar buff-colored

membrane. The disease, as described by Dr. Ranking, differs in no respect from that of Bretonneau and other French writers. It appears in the locality mentioned by him to have assumed the most fatal characters. In his treatment, Dr. Ranking condemns the solid nitrate of silver as a local application, but advises either a twenty-grain solution or a gargle of muriatic acid. Internally, he has great faith in the tinct. ferri sesquichloridi. He also insists strongly on the necessity of wine in large quantities, believing, and, as we think, with justice, that medicine is secondary to a vigorous support of the general power by stimulants.

On the influence of Variations of Electric Tension as the remote cause of Epidemic and other Diseases. By WILLIAM CRAIG, Licentiate of the Faculty of Physicians and Surgeons, Glasgow; and Consulting Surgeon to Ayr Fever Hospital. (Lond. n, Church, ll, 8vo, pp. 436, 1859.)

The influence of electricity in the causation of disease is one of the vexed questions of medicine. Latterly, it has been considered doubtful, from the manifestations of those physical agencies seemingly most active in the production of disease, being interdependent, and from the difficulty, if not impossibility, of isolating the influence of any one agent from another, whether we could rightly say that this or that agent, be it heat, or electricity, or moisture, or atmospheric pressure, &c., was the cause, apart from other agencies manifested along with it, of disease, except in a secondary sense. Dr. Craig, however, conceives that he has just ground for believing that in the variations of electric tension will be found the remote cause of epidemic and other diseases. He rests his views chiefly upon certain physiological considerations, concerning which he writes:—

"The author has long entertained the opinion that variations in electric tension on the various parts of the earth act prejudicially on those animals that may be placed on the portion of the earth which may be thus affected. In a letter which he sent to a medical friend in Glasgow, in March, 1841, there is the following observation:—

"You will have observed ere this that my object is to attempt to discover a cause of disease different from those usually known—a cause, moreover, which is much left in the dark, and allowed quietly to work its deadly effects, making, unthought of, its undermining devastations. The analogy that subsists between nervous influence and electricity is now recognized by physiologists. The manner in which the nerves act on the blood, in order to select the constituent of the varied complicated secretions and corporeal supporting depositions, is analogous to what is understood by chemists as electric affinity. Hence, when we consider the resemblance of this imponderable body to nervous power, working in us so wonderfully and incessantly, we cannot withhold our conviction that the great changes which occur in the amount of this electric matter, and which are affected by the operation of meteorological causes, have a mighty effect on animal life. In consequence of the heat which is generated within us so continuously, we become positively electrified, or, in other words, we have a greater amount of electricity than the inanimate surrounding objects.

"Will, then, on the application of moisture to the surface of our bodies, such as takes place when we get drenched with rain, or ducked in a pool of water, the good conducting power of the water in a state of evaporation withdraws the electric fluid from our system, and the nervous power is thus deprived of the amount of support which it derived from its depaupered electric fluid. Now, provided the amount of nervous influence, and the assistance it received from this fluid, were just what was required for the individual to guide the animal machine, and nothing more, the abstraction of electric fluid which has taken place would leave this structure unequal to its many duties.

"I am of opinion that the source of epidemical diseases will ultimately be found to depend on the variations which take place in the state of the electric fluid. It seems to require a great effort of the nervous system to abstract from the blood the ingredients which form the complicated excretion—the urine.

This seems to result from the little attraction the most of the substances composing it have for electricity, or otherwise, for what is reckoned analogous, the nervous power. Well, I would suppose that it will require a large amount of nervous power to take up from the blood the salts of the urine, and the phosphorous formations, as these have all a very feeble attraction for electric fluid, or, in other words, are bad conductors. Now, supposing the nervous power were in a weak condition, and the body in a comparatively negative state of electricity, these offensive ingredients which are contained in this excretion are not thrown off, but circulated through the system—thence, as in cholera, the vitiation of this fluid.

"This with, perhaps, a like operation on some other of the secretions, in all probability gives rise to the tar-like appearance of the blood, and its inability to perform its important offices in the animal economy."

"At the time at which the above remarks were written, the author had not espoused the opinion that nervous power and electricity are identical, but viewed the latter in great measure as a mere supplementary power. Having, however, since the period above stated, studied the subject more attentively, he has come to the conclusion that, if not completely, it has been all but proven, that electricity and nervous power are identical. In the following treatise he will view them in this light, as this will afford an opportunity of entering rational views on the very important subject of the remote cause of disease."

"To be properly understood, it will be necessary to carry along with us a few recollections of natural philosophy. It is a recognized fact in physics that heat and electricity are identical, and that the one is convertible into the other. It is also admitted as fact, that every atom of ponderable matter is surrounded by a little atmosphere of heat, and it is through the agency of this element that attraction and cohesion between the primary constituents of bodies are maintained. It was mentioned by Mr. William Higgins, of Dublin, as far back as 1789, that 'all compounds are formed by the union of exceedingly minute atoms which are surrounded by atmospheres of caloric.' It is this caloric, surrounding the atoms of simple and compound bodies, that constitutes what is called latent heat. The gaseous bodies are known to be possessed of an immense amount of latent heat. It is on the large amount of latent heat in these light bodies that their characteristic lightness depends. The vegetable bodies are almost wholly composed of these gaseous bodies, and, of course, contain less or more of the heat which is individually possessed by their constituents. The saline and earthy constituents of these vegetable bodies also contain their portion of latent electricity."

The assumption that electricity and nervous power are identical will scarcely meet with acceptance among physiologists; and the assertion that it is a received fact that heat and electricity are identical will startle physicists. The assumption and the assertion may be said to be, however, the cardinal points of Dr. Craig's hypothesis; and the quotation given will show his method of physiological and physical argument.

Upon this unstable basis Dr. Craig proceeds to develop his etiological notions, and as it may reasonably be presumed that the operation of the different agencies which are active in the production of disease invariably disturb the heat-producing powers of the economy as well as the nervous force, we shall find, upon the assumption that heat, nervous force, and electricity are identical powers, that every morbid phenomenon is accompanied by a variation of electric tension, which may be further assumed to be the remote cause of the phenomenon.

As examples of Dr. Craig's method of applying his hypothesis to disease, we may quote his remarks on "taking cold," and (in part) on cholera, simply premising that he attributes the great influence of moisture in the causation of disease mainly to the disturbance of electric tension induced by evaporation.

"The imaginary agent most commonly accused of producing preternatural disease is *miasm*. Now, so far as I know, this miasm is not known as anything tangible—anything appreciable by any of the senses; no search has found out its reality; yet it has been long acknowledged as an operating cause in pro-

ducing epidemic disease. When we take into account the principles here advocated—viz., that electricity and nervous force are identical, that the electricity evolved from the air in the lungs during respiration, and that separated from the ingesta during assimilation, is that which supplies the vital electricity to the nervous system, and that any cause which hinders the supply, or suddenly and to a great extent withdraws it after being supplied—there is here an appreciable combination of causes which will injuriously affect the system. 'Taking cold' will thus become an easily-comprehensible idea. The escape of heat—that is, the withdrawing the electricity from the body—is understood to be 'taking cold.' The abstraction of vital electricity from a person whose nervous system has nothing to spare, will cause derangements that will be developed in some form of disease; the nervous currents in such circumstances acting on a secreting gland may be insufficient to elaborate from the blood those constituents which are required to form the various secretions; and in this manner may the secretion be imperfectly eliminated, and the depuration of the blood incompletely effected; and the retention of those elements which ought to have been given off will give rise to diseases which result from the vitiation of the fluids of the body."

"Besides the conducting power of evaporation, to draw off electricity from the earth, and the objects thereon, there may be some occult influence in operation in the mineral strata which constitute the crust of the earth, of good conducting power, which may disturb the regularity of the distribution, and unsettle the equilibrium of the electric fluid on the surface, withdrawing it probably into more central regions, leaving the surface in a highly negative condition, compared with that in which it was before being thus acted on. In this way may be produced those epidemic and occasional attacks of pestilential disease, which cannot be attributed even to the existence of those circumstances which are generally looked upon as remote causes. In this way may have arisen pestilential cholera, in the temperate regions of the earth—a disease which was for a long time considered to be endemic in hot climates, as it primarily raged in those countries which are found in the torrid zone. It was considered that, like the other pestilential diseases peculiar to hot countries, the material for its production could not exist in the colder regions of the globe. But variations of electric tension may be produced by the powerfully operating electric agencies of internal combustion and volcanic action, which must be occasionally going on in various parts of the world, and which must be felt on the surface, altering its relative electric condition. As evidence that there is more than hypothesis in this statement, the author will refer to the observations of M. Andraud, which were made during the prevalence of cholera in Paris, in the year 1849. In a communication made to the French Academy, dated July 10th, 1849, he states that his electric machine was very powerful, and continues—'I have remarked that, since the invasion of cholera, I have not been able to produce on any occasion the same effect. Before the invasion of cholera, in ordinary weather, after two or three turns of the wheel, brilliant sparks of fire, of six centimetres in length, were given out. During the months of April and May, the sparks obtained by great trouble have never exceeded two or three centimetres, and their variations accorded very nearly with the variations of cholera. This was already for me a strong presumption that I was on the trace of the important fact that I was endeavoring to find. Nevertheless, I was not yet convinced; because one might attribute the fact to the moisture that was in the air, or to the irregularities of the electric machine. Thus I waited with patience the arrival of fine weather and heat to continue my observations with more certainty. At last fine weather, and to my astonishment, the machine, frequently consulted, far from showing, as it ought to have done, an augmentation of electricity, has given signs less and less sensible; to such a degree, that during the days of the 4th, 5th, and 6th of June, it was impossible to obtain anything but slight cracklings without sparks. On the 7th of June the machine remained quite dumb. This new decrease of the electric fluid has perfectly accorded with the renewed violence of the cholera, as is only too well known. For my own part, I was not more alarmed than astonished; my conviction was complete. At last, on the morning of the 8th,

some feeble sparks re-appeared, and from that hour the intensity decreased. Towards evening, a storm announced at Paris that the electricity had re-entered its domain: to my eyes, it was the cholera which disappeared with the cause which produced it. The next day I continued my observations; the machine, at the least touch, rendered with facility some lively sparks." He states, that in the six days following the 8th of June, the mortality in Paris fell gradually from 667 to 355."

Dr. Craig applies his hypothesis at length to yellow fever, plague, intermittent and other fevers, to pestilential diseases on board ship, and to diseases generally, and he offers one or two suggestions for prevention. His views concerning pestilential diseases on shipboard are included in the following proposition:—

"That fever on board ship is caused by continuous evaporation, and consequent low state of electric tension. That on this account they ought to be kept as dry as possible, and with no water in the hold, especially in hot climates. That care ought to be exercised not to take a moist cargo on board. That in an unhealthy locality the seamen ought never to be on shore at night."

He very properly argues that, to be successful, treatment of epidemic diseases must be commenced early; and his chief hygienic recommendations are that, those living in pestilential regions should have their habitations dry and well elevated—high situations being more favorable to health than low, from the elevated "being drier, and having less provision for evaporation;" that the beds in the same regions should be insulated by good conductors; and that the inhabitants should be out of doors as little as possible during the absence of sunshine, unless the soil be thoroughly dry. Proper nourishment and clothing are among the best methods for arresting the progress of pestilential disease—"the former to provide for the supply of nervous power, the latter to prevent its escape after being eliminated;" also, "dry and comfortable houses, and the avoidance of all kinds of dissipation and of exposure to the damp earth and air which usually prevail at times of pestilential disease."

The Causation and Prevention of Disease. By JOHN PARKIN, M. D., late Medical Inspector of Cholera in the West Indies. (London, Churchill, 1859, 8vo, pp. 191.)

There are few things better calculated to promote the well-being of science than the discussion of the doubtful portions of received theories, if that discussion be carried out in a right spirit. This is an essential requisite of steady and sore advancement. Now, Dr. Parkin discusses the received notions respecting the influence of decomposing animal and vegetable matters, of the vitiation of the atmosphere from overcrowding, and of the use of impure water in the causation of disease, and he concludes from his examination of the data upon which he supposes those notions to be based, that they are erroneous in their entirety. Dr. Parkin conceives, moreover, that he advances a sufficiency of argument to show that the effluvia from decomposing matter and a polluted atmosphere are in reality beneficial to health. Unfortunately, the author conducts his argument in so intolerant a fashion as to place it beyond the pale of criticism, and we shall simply remark that his opinion arises in great part from a misconception of the views he seeks to controvert, and from the belief that their destruction is requisite to the due maintenance of certain ideas which he entertains on the causation of disease. These ideas are worthy of note as the conceptions of a thoughtful man of world-wide experience who has clearly observed a hiatus in our present epidemiological knowledge, as well as in our knowledge of the etiology of epidemic disease, and who has boldly endeavored (although with but imperfect success) to fill up the gap. He writes—

"There is another phenomenon which the advocates of this theory [of decomposing organic matter] would do well to consider, and might be called upon to explain. This is the occurrence of disease among the inhabitants of the deep, who frequently die in large numbers during epidemic periods, as was particularly remarked during the prevalence of the Black Death of the 14th

century, and also since the appearance of the epidemic cholera—a circumstance I have dwelt upon more particularly in another place. This mortality occurs not merely among those small species that inhabit rivers, lakes, and ponds, but also with those ocean leviathans that are only found at a distance from land, and therefore removed from the operation of all those local causes that affect the inhabitants of the dry land. Will these theorists tell us that the decomposition of organic matter is going on beneath the waters of the ocean, and that the ferment has descended to the bottom of the mighty deep? I know not what their answer may be, but, before giving one in the affirmative, I would recommend to them to study another subject; and this is the occurrence of disease in the vegetable creation—as, for instance, among the potatoes.

“That this vegetable epidemic is due to the same cause as that which produced the epidemic cholera, it has been my object to show in a separate essay; while, also, I have attempted to demonstrate that the two diseases are the effect of one and the same poison. Are we, therefore, to refer this disease to organic decomposition, or to another and a different cause? If the former, we should have to inquire how it happened that those products of putrefaction, some of which serve those plants for food, while the remainder prove perfectly innocuous at ordinary periods—for plants, it should be remembered, not only live but flourish in the midst of decay and putrefaction, as pigs live and thrive in the midst of filth—are suddenly converted from the elements of life and health into the elements of disease and destruction? If, on the other hand, we ascribe the disease to some other agency, the preceding theory falls at once to the ground; for if there be some general cause in operation, irrespective of organic decomposition on the surface, causing disease and death in the vegetable creation, we cannot fail to refer the production of analogous effects in man to the same agency, as it is not probable that there will be two causes in operation at one and the same time, productive of the same or similar results. We may, therefore, conclude that this supplemental theory, like that applied to the production of endemic diseases, is insufficient to account for the origin of epidemics—as such, we will return to the subject that more immediately concerns us, the causation of endemics.”

Highly considering that we possess no theory of disease which satisfactorily includes zoonotics and the general diseases of plants, Dr. Parkin seeks for one, and he has come to the conclusion that the known phenomenon of malaria, ordinarily so called, give the clue to the problem to be solved. Setting aside the opinions which have been advanced respecting the nature of malaria, he writes:—

“But then the question arises, how is this invisible agent produced? If not from a cause existing on the surface, or in the soil from which it is extricated, whence can the poison be derived, and how can it be generated? It cannot be due to any cause existing in the atmosphere, being first generated in that medium, and then deposited on the surface of the earth; for the effects would then be more general, instead of being confined, as is now the case, to particular situations of defined and limited extent. Besides, there are other facts which prove that malaria cannot be generated in the atmosphere; but it is not necessary to adduce more than one: this is, that when the surface of an unhealthy district is covered with some impermeable substance, or with water, the diseases that previously prevailed will cease, and the supervention of others be prevented. The process, therefore, which produces malaria, must take place beneath, not above the surface. Now there is only one process that takes place beneath the surface, and which gives rise to the production of poisonous elements, independently of the decomposition of organic matter; and that process is what has been termed volcanic action. If there be no other way in which we can account for the generation of the poison, it is reasonable to inquire whether it is not to be ascribed to this particular process? This is a question that I have already answered in the affirmative, as regards epidemic diseases, and I am induced to draw the same conclusion as regards endemics. It is not my intention, however, to enter into any arguments in proof of this conclusion, on the present occasion; not only because the subject requires a separate con-

sideration, but also because my object now is to point out what is the immediate, not the remote cause of disease. The latter may be interesting in a scientific, but it is the former which is alone necessary in a practical point of view. All that we require for practical purposes is to know the nature of the elements productive of disease, their situation, and the source whence they are derived. What the process is which gives them origin, and what the depth at which it takes place, are immaterial at the present moment. I may, however, be allowed to remark, it is only the hypothesis now referred to that will enable us to explain all the various anomalies which are left by the preceding theories; while all, or nearly all, the facts connected with the appearance and prevalence of epidemic and endemic diseases admit of explanation by a reference to this theory. Several facts connected with this part of the subject will be alluded to hereafter; I will therefore only mention one, which admits of explanation in no other way. This is, that those living in cellars suffer more from fever than any other class—a fact clearly established by Dr. Duncan, in his interesting 'Essay on the Prevalence of Fever in Liverpool.' It appears, from the statistical facts adduced by this writer, that out of every 100 dispensary cases of fever in that town, 30.22 were living in cellars: compared with the whole population, the cellar population yielded 35 per cent. more cases of fever.

"As regards certain objections that have been made to this theory, and which will no doubt be repeated, viz., that disease does not prevail to a greater extent in the neighborhood of volcanoes than elsewhere; and that epidemics prevail in situations where neither volcanoes nor earthquakes are observed; I have only to add, that these objections have been already answered in the second part of my work on the 'Cause of Epidemics.' These critics have not only mistaken my conclusions, but they have also confounded volcanic action with volcanic effects. I have never referred epidemic diseases to the eruption of volcanoes, or to the occurrence of earthquakes—but to the cause which produces them. These phenomena are only particular effects of a particular cause; while it is remembered that they only occur at long intervals and uncertain periods; but the cause which gives rise to them, and to a series of minor effects—one of which is, as I infer, disease and pestilence in the animal creation—is in constant operation. We may, therefore, have one or more of these effects, without the occurrence, or the presence of the others. But, although there be no volcano, and although no earthquakes be experienced, there may be other signs of the operation of this particular cause. There is, in fact, no country where evidence is not to be obtained of the existence of volcanic action, either at the present moment, or at some antecedent period. The above objections, therefore, are rendered invalid."

A practical result which follows directly from this theory is worthy of quotation:—

"Having concluded that all general and specific diseases, or, in other words, epidemics and endemics, are due to the extrication of a gaseous substance from the interior to the exterior of the earth, it follows that the best and most effectual method to prevent the injurious operation of the morbid agent would be to render this extrication impossible. Now there is only one way in which this can be accomplished effectually, and that is by covering the surface with some impenetrable substance; and this plan has been adopted to a greater or less extent, under particular circumstances, for ages. Although not employed for this special object, there can be no doubt that the paving of streets of towns has been beneficial in a sanitary point of view, while, as a matter of course, the houses themselves, when the foundation is solid, will act in the same way. When, however, there are unpaved cellars, with walls composed only of loose soil, they will produce the opposite result; for, while the extrication of the gaseous matter is not thereby prevented, its escape, on the other hand, into the surrounding air is rendered more difficult. Hence, the greater prevalence of disease among those who dwell in these subterranean abodes, as was previously shown.

"As a proof that pavement acts as a preservative, I may refer to Florence, the healthiness of which has been already mentioned; for it is principally to this circumstance that I attribute its remarkable freedom from endemic disease.

Unlike other towns, which, if there be flag stones at the side, have only loose paving stones in the centre, while these even are frequently absent, the whole *sella* of the streets in Florence is covered with a solid and firm pavement. As every large street, lane, and court, and all the principal streets, as far as the walls, are thus covered; and as the only uncovered spots are two squares and the few gardens that exist in the town, it follows that the inhabitants are thus effectually preserved from any exhalations that may arise from the surface. There is the river, it is true, but there can be few exhalations from such a stream as the Arno. In the first place, the bank on both sides, is lined with a magnificent quay; while a dam erected across the river at the lower part of the town, keeps the bed covered, the greater part of the year, with water. When exposed, however, there is no muddy bank to be seen, nothing but the sandy bottom, which the first fall of rain from the mountains hides again from view. Although I do not attribute the difference entirely to the want of pavement for the reason is, probably, extricated more without than within the city, I may remark, that Rome is paved with small paving stones, there not being a pavement for foot-passengers, excepting in one street—the Corso. But, if the unhealthiness of Rome is to be attributed, in part, to its Campagna, and the alluvial banks of its river, so, on the other hand, it may be answered, that the absence of such a plain is the cause of the healthiness of Florence. Although the latter town is hemmed in by high hills to the north and to the south, it is open to the east and to the west, being, in fact, situated in a valley; a position that is sometimes more dangerous than the open plain, for the exhalations which arise, instead of being dispersed, may be confined by the natural walls on either side. As, however, it would not be right, in such an inquiry, to draw general deductions from isolated examples, I shall not carry this argument further, but turn to another town, London, where similar results would appear to have been produced by a similar cause.

"Although we cannot boast that the whole width of our streets is paved with flag stones, we can yet point to the most extended and perfect system of foot pavement that has been witnessed, either in ancient or modern times. Such an arrangement, particularly when we remember that it is extended into the majority of the courts and alleys, added to the paving of the carriage way, which, although not so efficacious, must still be productive of some benefit, has, we may conclude, contributed to render London so remarkably healthy. This *fact* has, no doubt, been increased by the custom that prevails in London of having the kitchen underground; for the foundations of the houses are not only better built in consequence, but the surface beneath is hermetically sealed by the solid floor. In Continental cities, only cellars are to be found under the houses, and these in general unpaved. This, and the causes that will be presently discussed, are the only circumstances with which I am acquainted, that will account for the gradual subsidence of certain diseases, and the regular diminution in the rate of mortality, that has been observed during the last two centuries in London."

Carbonic acid gas and charcoal have, according to Dr. Parkin, the property of neutralizing malaria, and the former plays an important part in elevating the healthy status of crowded towns or dwellings, and the latter, in the form of soot, has a most beneficial influence upon the health in smoky towns. Need we say more? "True," remarks Dr. Parkin, "the amount of direct evidence is not great, but then, the indirect facts are, perhaps, of more value in such an inquiry than the direct ones. For instance, if we find that a similar result is produced by the combination of carbonaceous matter, as by the congregation of a number of individuals in a small space, and if we find that the only agent common to each is carbonic acid, we cannot fail to refer the benefit derived to the presence of this; for it is not probable that two, or more operations, differing so greatly from each other, should produce the same result in any other way" (pp. 166-7).

In an appendix Dr. Parkin discusses the plan that is now being carried out for the better drainage of London, which plan, as may be surmised from what has been said, meets with little grace at his hands.

On the Treatment of Tetanus. By Mr. CAMPBELL DE MORGAN, Surgeon to the Middlesex Hospital. ('British and Foreign Medico-Chirurgical Review,' April, 1859.)

Mr. C. de Morgan's object in this paper is to recommend a full and complete trial of acouite or analogous remedies in the treatment of tetanus—of remedies which diminish the irritability of that part of the nervous centres which controls the reflex muscular actions, and induce muscular paralysis, in contradistinction to those which, like opium, act on the brain, and diminish sensibility rather than irritability. The treatment is to be, not by ordinary doses administered at long intervals, but by extraordinary and rapidly repeated doses. The influence of disease in controlling the action of medicines has not yet been fairly considered by practitioners, and there can be no doubt that in many instances a remedy has been set aside as useless, when in fact it had only been given in quantities which, in that special disease, were altogether insufficient. In phagedena, for instance, as much as forty grains of opium have not unfrequently been given in the course of twenty-four hours to persons accustomed to its use, without the manifestation of any one symptom characteristic of the influence of the medicine upon the system. In tetanus and other painful nervous affections, a similar remark respecting opium holds good. In pericarditis, enormous quantities of calomel will be borne without the system becoming affected. Influenced by these considerations, and believing that the limit to the use of medicines in some forms of disease is not to be fixed by the boundaries within which they must be restricted in healthy states of the body, Mr. De Morgan gave acouite in a larger quantity than has perhaps ever before been tolerated. One drachm of Fleming's tincture, which is more than twice as strong as the Pharmacopœia tincture, was taken continuously for three days; and we find that in the course of ten days, three drachms of the Pharmacopœia tincture and five drachms of Fleming's tincture were taken without the manifestation of any effect upon the system, except the lowering of the pulse from 135 to 60 in the minute (the patient's natural pulse being from 75 to 80) and the abatement of the spasm; for from the time the pulse began to fall, the boy had no convulsions, and there was a progressive diminution of the clonic rigidity. Nor was this owing to any idiosyncrasy which gave the lad immunity from the effects of acouite, for when some ordinary doses of the tincture were given to him about three weeks after the subsidence of the tetanic symptoms they were found to produce their usual effects.

It will be seen that strychnia was given at one time in Mr. De Morgan's case, but it is not difficult to perceive, as Mr. De Morgan supposes, that the effects of this remedy contrast with those of the acouite in being prejudicial rather than beneficial. Croton oil was also given, but it is admitted at the end of the paper that harm and not good is done by keeping up irritation in the alimentary canal. In addition to his own case, Mr. De Morgan refers to a case of tetanus treated with acouite by Mr. Page, in the Carlisle Infirmary, in 1846—a case which we remember well, being then accidentally a *locum tenens* for the house-surgeon in that institution. He also refers to a case of tetanus treated by cinnum by Dr. Stewart, in the Middlesex Hospital. The cases all speak for themselves, and the only comment we will make is to hint that cinnum would appear to have some advantages over acouite in the treatment of spasmodic disorders, in that it is less likely to depress the already too greatly depressed circulation. We would also add that for some months we have tried cinnum with apparent advantage in numerous cases of epilepsy and epileptiform affections.

1. Mr. De Morgan's Case.

" Henry Blackwin, æt. 15, employed at a coal-shed, was admitted into the Middlesex Hospital on the 16th of September, 1858, with symptoms of trismus. He is short, but well formed and strong, and has had, by all accounts, very good health.

" On the 30th of August, while walking, he trod on a large rusty nail, and the point of it pierced through the thin boot he had on, and ran into the right

foot just at the base of the middle toe. There was little bleeding from the wound.

"On the following day he came to the hospital, walking on the heel of the wounded foot in consequence of the pain, and aiding himself with a stick. A poultice was ordered; a gathering formed in the part, which broke on the 4th of September, and the relief was so great that he was able to walk about. On the 7th the place was quite healed, and he discontinued his attendance. On the 8th he felt a stiffness about the jaw, which got so much worse that on the 12th he was unable to open his mouth. He felt some stiffness at the back of the neck, and pain down the back to such an extent as to interfere with his walking. He had some difficulty in swallowing. On the 13th he took to his bed. On the 15th he was unable to open his mouth or move his head, but he had no twitchings in his limbs. For two or three nights he had not had any sleep, but dozed off occasionally in the daytime. The bowels had been opened daily.

"On the morning of the 16th he was brought to the hospital; the trismus was very severe, and he was unable to move his head in any direction. He perspired freely, and complained of great pain down the back, but there was no opisthotonos. The abdominal muscles were very tense; pulse, eighty. He was ordered a castor oil injection, and linseed-meal poultice down the back, to which was added a lotion of chloroform, aconite, and opium. A draught containing paregoric and the liquor opii sedativus was given every six hours; broth diet and strong beef tea.

"The injection only brought away a few scybala. At about ten P. M., on waking from a sleep of two hours, he had a spasm, which caused slight opisthotonos and great difficulty of breathing. The spasm lasted only a short time, and was followed by a copious perspiration. He slept afterwards for two hours.

"17th. Feels more comfortable, is in less pain, and the expression of the face more natural. Ordered—

Olei Tiglii, $\mathfrak{m}\mathfrak{j}$ statim;
Tinct. Aconiti, $\mathfrak{m}\mathfrak{v}$ 3tis horis;
Mist. Vini Gallii, $\mathfrak{z}\mathfrak{j}$ 4tis horis;
Essence of beef tea, two eggs, and milk $\mathfrak{O}\mathfrak{j}$.

"18th. Has had a fair night; but the trismus is more marked, and there is more pain down the back; the abdominal muscles are again very rigid. There is no pain in the foot.

"He was in this condition when I first saw him on my return to town. Hitherto he had been under the care of my colleague, Mr. Flower. The symptoms since the morning had been more marked, and were gaining ground. For reasons hereafter mentioned, I ordered him at once the one-tenth of a grain of strychnine every two hours, the symptoms to be carefully watched, and the medicine to be omitted as soon as any effects from it were observed. The diet to remain as before.

"In the evening the muscles of the back were very rigid; he was unable to bend his knees, and there was from time to time slight opisthotonos. He complained of twitchings in the thighs, which prevented his sleeping. These symptoms becoming more marked, the medicine was discontinued after the second dose.

"19th, 1 P. M.—The symptoms are more marked, the spasms at times being very severe, though during the night he had an hour or two of sleep. Ordered to resume the medicine.

"10 P. M.—The spasms have been increasing in severity. He has had six or seven violent paroxysms during the day, and has had continued suffering; pulse, one hundred and six; face and shoulders perspiring freely. The medicine to be taken during the night in half doses (one twentieth grain of strychnine).

"20th.—Has had no continued sleep; on dozing off has been startled by violent spasms of the hands and arms; the body rigid throughout. This morning, at about five, had a paroxysm so severe that he was near death from

asphyxia. He has great difficulty in swallowing. The pains down the thighs and in the abdominal muscles very severe. A turpentine enema to be used, and the strychnine to be given in its former dose, one tenth of a grain.

"The enema acted well, but the spasms were increasing in frequency and violence. After the second dose the medicine was stopped; the pulse, one hundred and thirty-five; the catchings in the hand constant.

"11 P. M.—The symptoms were now becoming so urgent that the strychnine treatment could not be longer tried. It was evident that though it was producing its own specific effect, the paroxysms of the disease were in no way relieved, nor were the chronic spasms at all diminished.

"That the symptoms were due in great measure to the disease was evident from the fact that the paroxysms did not correspond in time or severity with the administration of the strychnine. The symptoms increased in severity for fourteen hours, during which no medicine was given; and at the time when the paroxysms were most severe, they became milder during periods when the medicine was still being given; whereas, when strychnine is the cause of similar symptoms, the fits correspond in time and severity with the reception of new portions of the poison. During the whole time, moreover, the chronic rigidity of the trunk and lower limbs was becoming progressively more intense.

"The strychnine, therefore, was left off, and the patient was again put upon aconite, of which five minims of the Pharmacopœia tincture were given every two hours; and as the pains in the thighs were very severe, a liniment composed of equal parts of tinct. aconite and camphor liniment was directed to be rubbed into them.

"21st.—Has had some pretty severe attacks of spasm during the night, but says he feels more comfortable; the pains down the thighs are very acute. The whole body is still quite rigid. Has taken seven doses of the tincture, but feels no effect from it. It was ordered to be continued in eight-minim doses; pulse, ninety. In the evening he complained of a feeling of soreness in the throat; otherwise, during the day, he had been free from spasms. Ordered to take only half doses (four minims) during the night.

"22d.—Has had a somewhat better night, without any severe paroxysm; but the body is still perfectly rigid, and the pain is as severe in the thighs; less perspiration; pulse sixty. Tinct. aconiti, ℥viii 2dis horis.

"23d.—Remains much the same, but his appearance is better; to have a turpentine enema, and to take Fleming's tincture of aconite, ℥v every two hours, as before.

"24th.—The pain in thighs continues so severe that an enema containing ℥x of tinct. aconiti was ordered, but it did not relieve him. In other respects he is doing well. He has lost the active spasms, but the chronic rigidity is as great; pulse, sixty; has no sensations of pricking in the hands, or any unusual feelings in the body generally. An ointment of one part of ext. belladonna and two of opium was ordered to be rubbed into the thighs, and this gave him some relief.

"From this time the improvement was progressive, the countenance becoming more natural, and the pain and anxiety diminishing. The pulse remained steadily at from sixty to sixty-five, but he had no symptom indicative of the large quantity of aconite he was taking. On the 27th the medicine was given every four hours only; or the 28th he could open the mouth a little; the aconite was given every six hours, and on the 29th three times a day. He continued to take the medicine to this extent till the 4th of October, when it was left off altogether. At this time he could feed himself and move his limbs freely; the pain had entirely left him; the abdominal muscles were still tense; the countenance natural. A little hardness about the abdomen remained for some time longer, and it was not till about the 10th that he could open his mouth freely. He was kept in the hospital till the 2d of November, and was discharged in perfect health.

"There are some points connected with the treatment in this case which seem to me worthy of special remark. The disease did not show itself in a severe form. The symptoms set in gradually, and some days elapsed, after the stiffness in the neck was first felt, before any active spasm appeared. The

severity of some of the paroxysms may possibly be attributable to the strychnine. Altogether the case may perhaps be regarded as a favorable one from the beginning, though experience teaches us that even the mild and protracted cases are too frequently fatal."

2. *Mr. Page's case.*

The disease was caused by the irritation of a gunshot wound of the forearm; and the symptoms, which increased rapidly after their first appearance, were severe. On the third day after the stiffness in the jaw had been noticed, Mr. Page began the use of Fleming's tincture of aconite, and it was continued for thirty days in greater or less quantity, according to the recurrence of the symptoms, which, for the last fortnight, were of a very mild character, and were only severe for the first six days after the medicine was given. But it is remarkable that on all occasions the symptoms were subdued after the aconite had been fairly given. For example, on the day on which the tincture was first given, "the tetanic spasms were constant and severe; the muscles of the abdomen were rigid and unyielding, and those of the inferior extremity were so stiff as to render it very difficult to flex the limbs. At noon, a turpentine injection having been first administered, three minims of the tincture of aconite (Fleming's) were given, the effect of which became very speedily manifest, and in half an hour there was an almost total remission of the muscular spasm."

3 P. M.—The pain and spasms having again returned with increased intensity, producing a slight degree of opisthotonos, four minims of the tincture were administered, which produced the same speedy and marked effects as the former dose.

6 P. M.—The patient has been comparatively easy since the last dose, but there is now an evident disposition to relapse. Four minims to be given immediately, and to be repeated every hour until some decided effect is produced, the patient, of course, being carefully watched, in order that the remedial measures may be adopted should symptoms of poisoning become apparent.

10 P. M.—Three doses have been given—in all nineteen minims between twelve and eight o'clock; at present there is a complete cessation of the pain and spasms, which, however, did not yield until after the third dose had been taken. The system is now evidently under the influence of the aconite." And so during the continuance of the disease, though at times he was alarmingly affected by the medicine, the severe tetanic symptoms were constantly subdued.

3. *Dr. Stewart's case.*

"A man was admitted into the hospital on the 7th August, 1858, with severe and frequent paroxysms of tetanus, and with permanent locked jaw. The symptoms had set in eight days before. On the 10th, he began to take Taylor's extract of conium, and continued its use in five-grain doses every two hours, and afterwards every hour until the 26th. During this period, he took no less than two ounces and a half of the strongest form of extract, without any indication whatever of the physiological effect of conium, but with simply a gradual diminution of the tetanic symptoms. This of course was not an instance of the poison remaining unabsorbed in the stomach, as has been seen at times with opium. I should consider that here the agency of the conium was directed towards the counteraction of the morbid condition, and that hence its normal effects were not manifested."

A case of Epilepsy in which Castration was performed. By Mr. C. HOLTHOUSE, Surgeon to the Westminster Hospital, &c. ('Proceedings of the Royal Medical and Chirurgical Society,' 22d March, 1859.)

Ten cases are on record in which epilepsy is said to have been cured by castration. In the first case, the testicles were removed in consequence of disease of those organs. In the second case, one testicle was removed on account

of an accident to the organ. Both patients were epileptic previous to the affection of the testicles; and their removal, though not done with the view of curing the epilepsy, did so incidentally. These cases were related to Dr. M'Kinley, of Tennessee, U. S., by a Mr. M'Gavoc, of the British Navy, and are published in the '*American Medical Gazette*' of July, 1855, along with seven other cases in which castration was performed for the express purpose of curing epilepsy. Of these seven cases, two occurred in the practice of Dr. M'Kinley himself: two in the practice of Dr. White, of Tennessee; two in that of Dr. Talbot, of Missouri; and one in that of Dr. Hasker, of Louisiana. The tenth case occurred in Germany—the operation having been performed by Holz, under the direction of Joseph Frank—and it is recorded in the '*Præcox Medicæ Universæ Precepta*,' vol. ii. ch. ii. Mr. Holthouse's case, as reported by Mr. Adair, the house-surgeon of the Westminster Hospital, is as follows:—

CASE. Eli B—, æt. 44, widower, native of the United States, bookseller, was admitted into Luke ward in the above hospital, on the 4th of January, under the care of Mr. Holthouse, in order to have the operation of castration performed for the cure of epilepsy.

The patient is one of fourteen children, of whom eleven are living and healthy: his father is alive, aged eighty-four, and his mother died at eighty. There is no insanity in the family, nor is any member of it afflicted with epilepsy. He was a healthy child till he was ten years of age, when he commenced to practise masturbation, and soon after had an epileptic fit, in which he bit his tongue. This was followed by severe pain in the head, and incapacity for exertion next day. The fits recurred every three or four weeks. They came on suddenly without any premonitory symptoms. During the first two years he took "skull-cap tea," without effect: his diet was also regulated. He still continued to practise self-abuse, and did not finally relinquish it till he was twenty-two, about which time he began to take nitrate of silver. For two years he tried homœopathy, the fits increasing in severity. He was at school up to the age of fifteen, when he tried a sea voyage, but without benefit. Having returned, he sailed for South America, where he remained for two years, the fits being as frequent as before. While at New York he contracted gonorrhœa, having been accustomed to frequent sexual intercourse from the age of sixteen, in addition to the habit of self-abuse. He remained in New York for a few months, trying various remedies, amongst them sulphate of zinc, but without relief. He went again to the South for a few months, and upon his return he placed himself under the care of Dr. Kiseam (his brother-in-law), who prescribed nitrate of silver, in doses of one-eighth of a grain, three times daily, and in two months it was increased to half a grain. Very soon after he began to take this remedy the severity and frequency of the fits began to decrease, and he was so convinced of its efficacy, that he continued its use for about eight months, against the advice of Dr. Kiseam, who feared it might affect his skin, which, indeed, it did to some extent, giving it a blue tint. At the end of this time, the fits left him for a period of two years, having gradually decreased in frequency under the use of the nitrate of silver. From the time of his contracting gonorrhœa till his marriage, he abstained altogether from sexual intercourse and the habit of self-abuse, so that during the whole time that he was taking the nitrate of silver he had no extraneous sensual excitement; yet during this period he says that he was constantly troubled with nocturnal erections, and frequent seminal emissions. Being now twenty-four years of age, he married, shortly after which he again became addicted to sexual excesses. He left his wife and his business for several months, and travelled; the fits, however, recurred every three or four weeks, and were very severe. On his return his wife died, and he remained a widower six years, abstaining altogether from sexual excesses, although frequently troubled with erections. During the six years he broke his arm, several fingers, and his leg twice, whilst in the fits. At the age of thirty he married a second time, the fits having increased in number and severity. He was often compelled to send his wife into the country for a day or two, in order to avoid sexual excitement. The fits now recurred daily. His wife died a

year after marriage. After this he again abstained from sexual excesses. Dr. Horace Green, of New York, now cauterized his larynx daily with nitrate of silver, and at the end of three or four months he would be free from fits for nineteen days; when they did recur, they were so slight that he scarcely lost consciousness, and did not fall down. This plan of treatment was pursued for two or three years, at the end of which time he became attached to another young woman, which revived all his old amatory feelings, and the fits began to increase in frequency, recurring at intervals of fourteen days, when they would continue daily for a week, and then cease for fourteen days more. Galvanism was now tried with some slight beneficial effect. Next arsenic, in the form of Fowler's solution, which he continued till the fits recurred daily, and he became so prostrate that he was confined to his bed. For a long time he took iron to neutralize the effects of the arsenic, but for months he was compelled to walk on crutches. He came to England two years ago to have tracheotomy performed by Dr. Marshall Hall, who had advised it when he saw the man in America. Dr. Hall died soon after the man's arrival, and he went to Paris, and was under the care of M. Nélaton. Afterwards he placed himself under M. Troussseau, who gave him belladonna, which affected his vision but not his fits. Dr. Delasiauve next treated him with camphor for four months without effect. He returned to England, and was under Mr. Simon, at St. Thomas's Hospital, in order to have castration performed, in which he had great faith, for he attributed his fits chiefly to sexual excitement, which still troubled him much; but his wish was not acceded to. He took bromide of potassium without any benefit, and then the nitrate of silver for two or three months, in half-grain doses three times a day. The skin became darker than before, and the fits recurred daily. He next went to Germany, and was there stoned for a stone in the bladder on account of frequent micturition, which he has had since infancy. No calculus was present. He was an inmate of the hospitals of Vienna, Prague, and Dresden. He left the latter in October, 1854, and was admitted into the Westminster Hospital, under Dr. Radcliffe, on the 20th of the month, and remained in two months, during which period he took quinine and iron, and camphor, but without avail. Since his second wife's death he has entirely abstained from sexual intercourse, though he has been constantly troubled with nocturnal erections, and occasional seminal emissions, and these continued up to the time when he came under the care of Mr. Holthouse, to whom he applied to perform castration, which after much deliberation he consented to do; and it was performed upon both testicles on the 4th of January, 1859, under the influence of chloroform. Two or three hours afterwards there was considerable hemorrhage, which was checked by the application of cold. He had one fit during the hemorrhage. His face has a bluish slate tinge, which pervades the body, but the color is darkest on the face. His fits are of the rotatory kind, preceded by a sudden scream, and lasting not more than a minute, and when over he is quite himself again. In the fit which he had while in bed after the operation, he did not scream, but merely struggled violently.

January 5th.—He had another fit this morning.

6th.—The fit recurred early this morning.

7th.—At four this morning another fit occurred. He says that after his second marriage the fits frequently followed immediately on the act of coition.

8th.—Has had no fit at all to-day.

9th.—Had a very slight attack this morning, scarcely more than a giddiness for a minute. Altogether, since the operation, the fits have been exceedingly mild.

Mr. Holthouse brought this case before the Royal Medical and Chirurgical Society, partly because the result is not so favorable as in the cases referred to, and partly for the purpose of answering the objections which it had provoked. We leave Mr. Holthouse to speak for himself, merely adding that the patient had been previously in St. Thomas's Hospital, that a consultation was there held upon him, and that Mr. Simon would have castrated him if the other surgeons of the hospital had given their consent to the operation.

The reasons which induced Mr. Holthouse to operate are thus stated by him:—

“1. The patient's urgent request. 2. The simple and dangerless character of the operation. 3. The knowledge that epilepsy had been cured by castration. 4. The possibility, if not probability, that it might be in the present case. Lastly, I was further influenced by a consideration of the history of the case, which showed, first, that every remedy hitherto tried had failed; and, secondly, that there was a close connection between the origin and severity of the fits and the condition of the sexual organs. Whatever weight may be attached to the 2d, 3d, and 4th reasons, I confess I should not have felt myself justified in recommending a proceeding of which I had no personal experience, nor any knowledge of the individuals who had adopted it; but although these considerations would not have sufficed to make me recommend the operation, they had their influence in inducing me to consent to its performance. It will be obvious, then, that I was chiefly influenced by the wishes of the patient. The question, therefore, arises, how far may a patient's wishes as respects treatment be acceded to, and on what points must a physician or surgeon satisfy himself before acting on a patient's suggestion? The following seem to me to be essential: 1st, He must satisfy himself that the patient is of mature age; 2dly, that he is of sound mind, and not the subject of hallucinations or a monomania; 3dly, that his proposition is not unreasonable; and lastly, that the remedy proposed is not a dangerous one. Now, the only points on which I apprehend there can be any difference of opinion are—1st, as to the sanity of the patient; and 2dly, as to the reasonableness of the treatment adopted. I shall, therefore address myself to these two points. And first, as to the sanity of the patient, it has been asserted by many that the mere fact of the man having had epilepsy for so long a period was presumptive evidence that his mind was unsound, and the pertinacity with which he begged to be castrated was considered a sufficient proof that this opinion was not unfounded. Mania, I was reminded, sometimes takes this form, and lunatics have been known to castrate themselves. Now, I am free to admit that, if such a desire existed, or such a request were made on the part of any individual without adequate motive, there would be legitimate grounds for believing that he was insane, or, at least, laboring under an insane delusion. But was there no adequate motive in the present case? What are the facts? The patient is walking in one of the streets of New York, when he is stopped by a physician of eminence and repute, the editor of a medical journal, who informs him he has just received a communication from one of his correspondents, in which castration is recommended for certain forms of epilepsy attended with great venereal excitement, and that nine cases had been successfully treated by this method. The letter containing this announcement Dr. Reese reads to him, and advises him to submit to the operation, at the same time offering him an introduction to Professor Parker, Surgeon of the Bellevue Hospital, and Professor of Surgery at the University of New York, and one of the most eminent surgeons in that city. A consultation is held between Dr. Reese and Professor Parker, when the latter, having been made acquainted with the history of the case, and had his attention called to the cases published in Dr. Reese's journal, consents to perform it, and is only deterred from doing so by the interposition of a medical relative of the patient, who was of opinion that no benefit would result. From this period is to be dated the desire of the patient to be castrated; and believing that he had at last found a remedy for his disease, is it to be wondered at that he should be earnest and urgent in his desire to avail himself of it?—that he should prefer the positive evidence of those who had tried the remedy, to the negative evidence of those who had not—the practical experience of the former to the theoretical considerations of the latter? Moreover, when he called to mind the origin of his fits—their recurrence on his first marriage, after they had been absent for the two preceding years—their exacerbation on his second marriage, as well as under any sexual excitement—and his frequent nocturnal pollutions—could he dissociate the fits from the sexual organs? And was not the fact of his thus associating them a proof rather of his sanity than of his insanity? I appeal to the candor of the Society whether there is the

least analogy between a man desiring castration under such circumstances, and the morbid craving for mutilation of a madman? I would further remark, that the removal of the exciting cause of epilepsy, as indeed of any other disease, has been long recognised as the established rule of practice; and although it is not always possible to determine what this cause may be, I hold it to be generally admitted that we are justified in acting on a fair presumption of the cause, though such presumption must necessarily fall short of actual proof. Acting on this presumption, epileptic patients have been subjected to the dangerous operation of trephining, sometimes with and sometimes without success. Acting on such presumption, Wardrop cured a case of eccentric epilepsy, by removing a joint of a healthy finger. Tissot relates a case where a similar good result followed amputation of the great toe. Dr. W. H. Edwards, of Virginia, U. S., cites another, in which the leg was amputated a few inches below the knee-joint; and several similar or analogous examples are on record. It must be obvious, then, that in all of these cases the epilepsy was of eccentric origin, and that the great nervous centres were only affected secondarily and sympathetically. Now the whole history of the patient whose case forms the subject of this paper pointed to the abuse of the reproductive organs as the original source and the subsequent exciter of the epileptic paroxysms; indeed, the early abuse to which they had been subjected had so increased their functional activity that they were habitually in a state of abnormal excitement, and this reaching on the brain prevented that repose of the organ so favorable, if not essential to its recovery, and constantly tended to counteract the effect of other remedial agents. But I am assuming here that the brain is affected; and indeed, in so long a standing case, it would be absurd to suppose that this organ was not in some measure damaged, although it may not have been originally the starting point of the disease. I am aware it may be objected that the excitement of the genital organs was the effect and not the cause of disease of the brain, and that the origin both of the fits and of the sexual excitement must be referred to cerebral disorder. Now, though it may not be possible to prove the negative of this, there are so many facts which demonstrate the influence of the reproductive organs over the cerebral functions, that it is no unfair inference to suppose they may have thus acted in the present case. I hold, then, that the removal of all extrinsic sources of excitement from a disordered brain is both reasonable and proper; and believing, as from the history of the case I was entitled to do, that the reproductive organs of this patient did exercise an injurious influence on his brain—seeing, moreover, that precedents were not wanting where the removal of the testicles, under like circumstances, had been attended with success—I say, taking into consideration all these circumstances, I maintain that the request of the patient was not unreasonable, and that it was perfectly justifiable to accede to his wishes. The results of the operation are, so far as can be judged of at present, certainly not such as the patient anticipated: the fits continue to recur with much the same frequency, and are of a similar character."

A case of Topical Medication of the Larynx. By Drs. HORACE GREEN, BEALES, and MORR. ('Amer. Med. Monthly,' Feb. 1859.)

The excitement connected with this case, not only in New York, but throughout the length and breadth of America, has not yet had time to die out. At first, a sweeping condemnation was passed upon Dr. Green, and the death of the patient was unhesitatingly laid at his door: and even now the professional and public mind is only half pacified by the resolution of the Academy—a resolution come to after a discussion carried on through three several sittings—"that we, the Academy of Medicine, after a full examination of the reports of the case, and the post-mortem examination, do consider that the death of Mr. Whitney was in nowise the consequence of improper treatment, but was the unavoidable result of a complication of disorders." At any rate, Dr. Green has a right to complain of the want of proper professional feeling in one or more of those who had to do with the case after he had done with it. For ourselves, we do not venture to express an opinion; and we content ourselves with simply

giving the data upon which an opinion may be formed, viz., the account of the case by Dr. Green, and the subsequent account by Dr. Beales and Dr. Valentine Mott.

CASE.—1. Dr. Horace Green's account of the case while under his treatment.

"On the 25th of October, 1858, Mr. S. S. Whitney (a son of one of the wealthiest citizens in New York) called upon me, and requested to place himself under my care, for medical treatment. His health, as he stated, had been bad during several years, and for a twelvemonth past he had more or less cough, which cough had increased considerably of late. It was quite severe by spells, he said, and was attended with slight hemorrhage, which, he believed, came from his throat. His face was pale and thin, and his general appearance was indicative of a phthisical condition of the system. I examined his chest by auscultation, in the presence of Dr. Richards, who, as is usual in the cases I examine, made a note at the time of the physical signs observed. I take from this record: chest thin; a little depression is observed on the left thoracic wall, with less expansion on this side; percussion gives a flat sound over all the upper portion of the left lung; slightly dull on the left side. On applying the ear to the chest, a distinct *humid r le* or '*click*' was heard below the left clavicle, in both inspiration and expiration—which, when accompanying the above signs, is positively indicative, in my experience, of the presence of tubercular softening. His throat appeared granulated and inflamed; the left tonsil was slightly enlarged and ulcerated; the epiglottis was thickened, and its border whitened with a line of erosions.

"The enlarged and ulcerated portion of the left tonsil was removed, the pharynx, the sub-tonsillary fossa, and the border of the eroded epiglottis were cauterized. An alterative mixture was advised night and morning.

"This alterative was continued by Mr. Whitney during the three following weeks.

"October 26th.—Applications of a solution of nitrate of silver were again made to the fossa, epiglottis, and into the glottis.

"27th.—The same treatment continued. After this, I saw nothing more of Mr. Whitney until the 9th of November, when he returned and requested to have the treatment continued. At this visit, and again on the 18th, cauterizations of the glottis and larynx were employed. I now spoke to him of the necessity of giving more attention to his case if he expected to be benefited by the treatment. He named some cause for his long absence, and promised to be regular in his calls thereafter. The soreness of his throat had disappeared, and his cough was less for a time, but latterly it had increased again. He expressed much anxiety about his lungs, and at this visit it was proposed to employ the tube and injections into the left bronchus, as soon as the parts were prepared for this operation. For this purpose the topical applications were continued to the opening of the glottis, and into the larynx. It was, I believe, at a subsequent visit, on the 20th, that I made another careful examination of his lungs. Unequivocal signs of a cavity in the superior portion of the left lung were now observed; for, in addition to *humid r les* in this location, the respiratory sound was distinctly cavernous.

"December 4th.—Another interruption of two weeks occurred, when Mr. Whitney returned, and the sponge probang was again passed into the larynx.

"6th.—It had been my intention for several weeks to employ tubage of the larynx in this case, as soon as the normal sensibility at the opening of the glottis was sufficiently overcome to allow the introduction of the instrument. But the patient's visits had occurred at such long intervals that I found the parts were not properly prepared. But as Mr. Whitney had several times expressed a desire to have it used, I resolved on the 6th to make the attempt. The tube was therefore introduced, and a drachm of the nitrate of silver solution, of the strength of fifteen grains to the ounce, was injected into the left bronchus. No irritation whatever followed this operation. The patient's next call was on the 9th of December. At this visit he expressed much satisfaction with the effects of the injection, stating that his cough and expectoration were both diminished,

and he desired that the injection should be again employed; but, for reasons hereafter named, only the glottis and larynx were cauterized, as in previous operations; and the patient engaged to call in two days and have the tubage repeated; but he failed to meet this engagement, and did not return until the 14th—five days afterwards. This was the last visit Mr. Whitney made at my office; and as most unjust and utterly unfounded reports have been made and widely circulated with regard to the character of this operation and its effects, I shall describe briefly, but minutely and exactly, the steps of the operation. After much experience in catheterism of the larynx, it has been fully ascertained that this operation can be performed with greater certainty, if employed soon, or within one or two days after the opening of the glottis has been cauterized. Hence these applications are usually made once or twice between each operation of tubage.

"When Mr. Whitney called at my office on the 14th, Dr. M. E. Foy, a member of this Academy, was present. He had expressed a desire to see the operation of tubage employed on some of my patients, and when Mr. Whitney came and took his seat, I remarked to Dr. Foy that it had been my intention to employ the tube for him on that day; but as he had not had an application to the glottic opening for five or six days, I was fearful for that reason of not succeeding, and as I had other patients on whom the tube operation was practised, I should not use it in Mr. Whitney's case, but employ the sponge probang. *The sponge probang was employed, but the tube was not used that day on Mr. Whitney.* It was never used but once in his case, and that was on the 6th of December, eight days before this last operation. The same probang, the identical instrument which on some ten different occasions previously had been passed into the glottis and larynx of the patient, was employed, and in precisely the same way, except when the sponge reached the glottic opening the patient partially closed the throat (a thing occurring every day with nervous or sensitive patients, and, as every operator knows, without the occurrence of any harm to the patient), by which the progress of the instrument was suddenly arrested, so that it did not enter the windpipe at all. It was at once removed, no more force having been used than that which is constantly employed every day in operations on the air-passages. The operation was not renewed, and the patient, after talking a while with Dr. Foy and myself, and remarking that 'the operation hurt him more,' or that 'he felt it more than usual' (which arose, as I said to him, from the sudden arrestment of the instrument), he left, with the arrangement that he should return the next day and have the tube employed. These are the precise steps, and the particulars of the last operation. Dr. Foy stood directly by the side of Mr. Whitney, and saw every part of the operation, and can testify, I doubt not, to the entire correctness of this statement."

Dr. Foy corroborates these statements in every particular.

2. Dr. Beales's account of the case after the cessation of Dr. Horace Green's attendance.

"December 14th, 1858.—About one in the afternoon I was called to see Samuel S. Whitney; I found him surrounded by several members of his family, in a state of the most intense excitement, suffering, and terror; in answer to my inquiries as to what had happened, he answered—'Sit down, Beales, and I will tell you the truth; I was such a fool as to go to Dr. Green to be operated upon, and the d—d villain has killed me.' His countenance was pale and haggard, and had all the appearance of a man whose nervous system had received a severe shock; his breathing was occasionally irregular, and almost apnoeic, coughing almost incessantly, and speaking with great difficulty and pain, in a hoarse and unnatural tone of voice; his skin was cold and clammy, and covered with perspiration; the pulse was extremely frequent, feeble, irregular, and intermittent, he was excessively restless, not remaining in the same place more than a few minutes at a time; complaining of intense pain in the region of the larynx, shooting through to the cervical vertebrae, and down the course of the trachea to the chest; he kept grasping the larynx, and reiterating every few minutes that he was murdered; I endeavored to calm the excitement

of the patient, and tried to examine his fauces and throat, which appeared in a state of great inflammation; I discovered no lesion, as, in fact, on account of the pain and terror of the patient, the examination was necessarily very imperfect, as he would scarcely allow the spoon to touch his tongue, and I concluded, therefore, to defer the examination till he should become more quiet. I gradually ascertained, partly from the family and partly from himself, that he had been several times to see Dr. Green; on the first occasion his tonsils had been amputated; on a subsequent occasion, ten or twelve days previously (the exact dates were not told to the relator), 'a hollow tube had been passed into his lungs, and about a teaspoonful of solution of nitrate of silver had been injected into them by touching a spring at the top of the tube.' Whether this was done more than once the relator does not recollect to have been stated. On the 13th of December Mr. Whitney breakfasted with his family, appearing to be in his usual health; he afterwards went to Dr. Green's office; the doctor passed an instrument into his throat, and finding some obstruction, he pushed the instrument with some force; he (Mr. W.) felt something give way, immediately experienced severe pain about the top of the windpipe, and told the doctor he had hurt him; he returned home, informed the family of what had occurred, and I was called as before stated. 1 P. M. I saw him with the symptoms and in the state previously described; it was evident that, under these circumstances, the only indications that could be followed were to rally the patient's strength, to produce some reaction, and to moderate the local irritation in the fauces.

"7 P. M.—Is suffering severe pain, described to be in the larynx, down the course of the trachea to the chest, and round to the cervical vertebra; pulse 112, feeble and irregular; still excessively restless; other symptoms are about the same; insisted on my remaining with him all night.

"15th, 3 A. M.—They called me, as they observed the face to be swelling; I found extensive emphysema all round the neck, and partially in the face, rather more noticeable on the left side; he had continued exceedingly restless, scarcely dozing for a few minutes, breathing very irregular; pulse 106; urine scanty, very high colored, and turbid. Continued the same remedies and nourishment.

"1 P. M.—Heat of surface more natural; scarcely any pain in the chest, emphysema very much increased round the throat and face, and extending down the chest; has not slept; has taken scarcely any nourishment, on account of the pain in swallowing; could not continue the inhalations, although they rather relieved him temporarily.

"8 P. M.—Dr. Valentine Mott saw him, in consultation with me. Is decidedly worse; emphysema very much increased. Neck and face enormously swollen, it has extended all over the chest, but lower down on the right side; breathing somewhat labored; pulse very feeble, irregular, and 112; skin is again covered with clammy perspiration, and about the neck and chest of a purplish erysipelatous appearance; does not particularly complain of pain, except in talking or swallowing.

"16th.—Upon the whole has passed a more comfortable night; symptoms are all a shade better; the emphysema rather less in the face, but the throat and the chest are enormous, the mammae resembling those of a stout nursing woman.

"17th.—With Dr. Mott. He slept more during the night, sometimes for nearly an hour at a time, has taken more nourishment, but there begins to be considerable mucous secretion, which interrupts his respiration, and gives him great trouble to expectorate; pulse very irregular and feeble; the slightest movement increases its frequency; it averages about 108.

"18th.—With Dr. Mott. Has passed the best night since the attack; there is a decided improvement in all his symptoms; emphysema slightly subsiding; pulse 90; is rather more hopeful.

"19th.—With Dr. Mott. Passed a very bad night, principally owing to the great increase of the mucous secretion, that keeps him almost constantly coughing and expectorating, which he does with great difficulty and suffering; the pulse very frequent, feeble, and excessively irregular, although it is certain that there is some serious lesion in the vicinity of the glottis, yet it

is utterly impossible to ascertain the state of the parts; the emphysema the rather subsided about the upper part of the face, so that he can partially open his eyes.

"20th.—With Dr. Mott. Has passed a very bad night; breathing labored, and all the difficulties of swallowing, &c., increasing; the emphysema rapidly disappearing from the face and throat; abdomen distended and tympanitic.

"21st.—During the night he became rapidly worse; did not swallow after 2 A. M., and died rather suddenly at 8 A. M., partly from exhaustion, and partly from asphyxia."

3. *The post-mortem examination.*

This was made by Dr. Alexander B. Mott, in the presence of Dr. Valentine Mott and Dr. Beales, and the record is signed by all three. Dr. Horace Green was not present, nor any of his friends.

Dec. 22d, 1858.—"Thirty hours after death nothing peculiar in the appearance of the body. Rigor mortis quite moderate. On making an incision from under the chin, in the mesial line of the sternum, it was remarked that the anterior projection of the thyroid cartilage was more than ordinary. Directly as the knife divided the deep cervical fascia on the left side of the thyroid cartilage, pus issued out; a little further division opened into a cavity, containing pus, about the size of a large hen's egg, and extending a little in front of the pharynx, and downward behind and below the thyroid cartilage. At the upper and posterior part of this abscess there was an opening into the pharynx, large enough to admit the end of the forefinger. This abscess was lined by a large quantity of destroyed filamentous tissue, hanging from different parts of it like wetted tow. The entrance into the oesophagus immediately below this was perfectly sound, internally and externally. The larynx was now laid open from behind, and at the first glimpse a red point about the size and shape of a grain of wheat, on the left side, a little below the left chorda vocalis, and running longitudinally, led us to exclaim, there is the point of laceration of the mucous membrane, by which the air has escaped into the cellular tissue to constitute the emphysema. On close inspection, and wiping the part with a sponge, no abrasion or aperture could be discovered. Every other part of the larynx and trachea, as far as removed, presented on its internal surface a perfectly normal appearance. Indeed, we all remarked that we had never seen a larynx and trachea more natural and healthy. We next concluded to have a look at the bronchi and lungs. Perhaps about an inch above the division of the trachea, the most beautiful vermilion redness that we ever saw on a mucous surface commenced and extended into each bronchus, but greatest in the left, and extended down each lung. Over this peculiar redness there was a cloudy shade, which vanished after a short exposure to the air. On opening the pleura, the upper lobe of the left side, at first glance, seemed covered with white thick pus. But, on close examination, it proved to be soft, strumous-like fibrin, easily rubbed off. This, on the side and posterior part, connected that lobe in patches to the pleura costalis. These imperfect adhesions were easily broken down with the fingers. The whole of the upper part of this lobe was very red and solid—hepatized. Just at the root, or at the commencement of the bronchial ramifications, there was an open cavity, about the size of a small black walnut, of a reddish-brown color, and irregular villous surface, as though a slough had separated. At the upper and anterior part of this cavity there was a small opening through both pleurae. This lobe was cut into in different directions, but no tubercles could be found. The lower lobe was perfectly healthy. The redness of the mucous membrane of the right bronchus extends to the lung of that side, but the three lobes were perfectly normal. There were no old adhesions on either side of the cavity of the coast. Some little appearance of the emphysema remained."

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on Endocarditis by the synthetical method. By Dr. in Physiology in the Grosvenor Place School of Medicine Foreign Medicine-Chair. Rev., January, 1869.)

his very important paper is to show that endocarditis in an inferior animal. Of sixteen experiments, in ten containing ten per cent. of lactic acid was injected not one failed to give during life, and after death, all

The proof is positive and complete.

is also a bearing of great interest in relation to the sounds of the heart. For the sake of connecting pathology with symptoms, Dr. Richardson divides the symptoms, keeping purely to those which are endocardial, into four stages—(a.) The stage when the action of the heart is simply excited, the sounds being normal. At this time all the valves are free, and not thickened, but the endocardium is of a brilliant vermilion color. (b.) The stage when the first sound is lost and the second accentuated. In this the auriculo-ventricular valves are thickened and oedematous, lying so close to each other that, when the heart was contracting, they must have cushioned against each other, and prevented regurgitation passively, i. e. without tension or movement. (c.) The stage in which the first sound is replaced by a faint purr. In this the auriculo-ventricular valves are beginning to lose the thickened and oedematous condition just mentioned. (d.) The stage when there is marked and sustained systolic bruit. In this stage the auriculo-ventricular valves are restored still more to their normal condition. In all these cases the semilunar valves of either side are scarcely affected. Now in every instance when the first sound was lost, an inspection of the heart showed clearly that the auriculo-ventricular valves were so modified that their tension was clearly impossible; and in every instance where the systolic murmur was established, the same valves were implicated, but in a different way, i. e. they were partly restored to their action, but indurated in structure. In every case the second sound was distinct, and in no case were the semilunar valves so implicated as to interfere seriously with their action.

"Better," says Dr. Richardson, "than any physiological or physical inquiry, these results prove to my mind that the systolic sound is due to tension of the auriculo-ventricular valves, and the second sound to tension of the semilunars. What can be more conclusive? Two animals are well—they have two sounds to their hearts, and two sets of valves in alternate play; the animals are made ill by experiment, and the first of these sounds is entirely lost; you listen to the heart for hours, and there is the one solitary tick: it is listening to a clock; you destroy, and cut down to the heart of one of these animals in this stage, and you find the ventricular valves inactive; you let the second animal have longer respite, and the first and lost sound returns, but modified as a murmur. You kill and cut down to the heart of the second animal, and you find the ventricular valve in a position to act, it is true, but devoid of flexibility, incapable of tension, and as it were fitted up for the production of murmur by the blood-stream."

Returning to the cases of induced endocarditis, it is seen that they differ from cases of spontaneous endocarditis in the disease being primarily manifested on the right side of the heart. This is a remarkable difference, for in spontaneous endocarditis the disease is almost entirely confined to the left side of the heart; but Dr. Richardson is not without an explanation—an explanation, moreover, which opens out other fields of thought. He says—

"The cause of the difference in the two classes of cases—I mean the induced and the spontaneous—seems to be simply this: In the case of induced endocarditis, the poison introduced into the body by an absorbing surface finds its way into the circulation by the venous blood. It follows that, as the poison traverses the circulatory canals, it comes in contact with the inner surface of the right side of the heart first; in the pulmonic circuit it undergoes some loss, and so entering the left cavity is less active in its effects. In other words, the poison in these instances, in so far as the heart is concerned, is derived from the systemic circuit, and is lost in part in the pulmonic circuit.

"On the other hand, in rheumatic endocarditis the evidence all points to the supposition that the poison is a product of respiration. Hence, as the poison traverses the circulatory canals, it comes in contact, first, with the inner surface of the left side of the heart: while, in the systemic circuit, it undergoes loss or combination, so that the blood returning by the veins is not poisoned, and the right side of the heart escapes.

"Reversing the previous proposition, the poison in these cases, in so far as the heart is concerned, has a pulmonic origin, and a systemic destruction.

"The further inference from this argument also is, that the action of the producing poison, both in the artificial and the spontaneous endocarditis, is directly on the part affected, i. e., by contact with the endocardial surface. Let us examine this question from another point of view.

"Seeing that a certain series of changes are produced in the endocardial membrane when the necessary condition, viz., a producing poison, is present, our reason admits of but two modes by which the changes induced could originate. Either the poison has been carried into the affected part through the nutritive vessel or vessels of the part, and thus has produced its effect, *a tergo*, by interference with nutrition; or it has been applied to the free surface of the part, and has produced its effect by direct contact, like a blister applied to the skin. Many poisons have the privilege of producing their effects by both methods, but in reference to lactic acid and endocarditis, and in reference to an assumed rheumatic poison and endocarditis, there is no alternative but to accept that the action of the poison is by direct contact with the free surface.

"For the position of the question is this: that in the artificial endocarditis the right side of the heart is first affected; in the rheumatic endocarditis the left side is primarily, and by a general rule which has but rare exceptions, singly affected. Now, it is clear that, if the effect of the poison in these cases, one or other, were *a tergo*, i. e. by introduction to the endocardial surface through the nutritive vessel, the two sides of the heart would share equally in the catastrophe, inasmuch as they are both fed from a common source and the same blood. But if the action of the poison is by direct contact of the poison with the free surface of the membrane, the occurrence of endocarditis in the induced cases on the right side, and in the spontaneous cases on the left side, is easily and satisfactorily accounted for.

"The observations here made lead me to recur for a moment to a remark already offered relative to the methods which have been pursued by those chemists who have searched for an acid condition of blood in rheumatic cases. As far as I can discover, every inquiry in this direction has been made on venous blood. But it is obvious, if the foregoing arguments are correct, that the venous blood is never charged with the free poison. The poison being disposed of in the systemic circuit by elimination and combination, can only be present in arterial blood, whither the chemist should turn for evidence."

Nor have we yet exhausted the subject of this important paper. Thus, among others, Dr. Richardson argues, from this production of endocarditis by lactic acid, "that a special poison, present in the blood and bathing all tissues, may have its influence as a disease-producing agent, localized in one structure or organ." He shows also that the ordinary sequences of the inflammatory process are the same in endocarditis as in other inflammatory disorders, and that (contrary to what he once supposed) the heads which fringe the margins of the valves originate in exudation beneath the endocardial surface, and not in simple deposits from the blood. He does not deny, however, the possibility that the heads thus formed may be the bases of a secondary deposit from the blood. He shows, also, that the tendency to fibrous deposition in rheumatism cannot be due to the neutralizing of the true blood solvent by lactic acid (as some have supposed), by showing that lactic acid is itself a fixed solvent of the blood.

On Diseases of the Stomach, with an Introduction on its Anatomy and Physiology.
By Wm. BRINTON, M.D., F.R.C.P., Lecturer on Physiology and Forensic Medicine in St. Thomas's Hospital; Physician to the Royal Free Hospital. (Post 8vo, Churchill, pp. 406, 1859.)

The neat portable volume we have before us claims to be the product of fifteen years of clinical observation and research, directed towards a group of diseases, in which the labors of Abercrombie and Craveilhier had still left a vast and almost unexplored field for succeeding inquirers. Hence, with rather more of deliberation and finish than we often find in medical literature, and with materials the wide and elaborate character of which have been favorably noticed by some of our critical contemporaries years ago, it offers us much that is novel, in the sense of being hitherto unpublished, and much more that is likely to be incidentally new to many of our readers, from its having been hitherto only included in papers and essays little accessible to the profession at large. It is to these points that we purpose limiting our attention.

A preliminary chapter, which gives us the author's views on the anatomy and physiology of the organ, and purports to be derived from his Physiological Lectures, may be regarded as an abridgment of his article "Stomach," in the 'Cyclopaedia of Anatomy.' It is illustrated by woodcuts drawn by the author. It contains the following points worthy of notice:—

The movements of the stomach are examined from the observations of Beaumont on the one hand, and the vivisections and experiments of the author on the other. It is thus deduced that, with variations mainly determined by the character of the food, and the stage of digestion, the gastric movement is a peristalsis, impressing on the gastric contents a slow uniform circulation; forwards at the surface of the organ towards the pylorus, backwards on its centre towards the cardia. The mixture and comminution of the pulpy food with the gastric juice are thus materially assisted.

To the pylorus, again, the author assigns a very different function from that attributed to it by previous writers.

"The structure of the pylorus already described, and the movements of the stomach just specified, demand a very different view of its action than that selective power usually attributed to it, and implied by its very name (*pylorus, porta custas*). Far from being a specific and independent structure, which contracts against the food in the earlier stage of digestion, but subsequently relaxes to permit the passage of the chyme, it must be regarded as a more terminal thickening of the transverse coat; with a strength proportional to its bulk, and an office, not only closely analogous to that of the transverse fibres, but almost identical in both stages of gastric digestion. Instead of relaxing only at the end of this act, to allow a moderate peristalsis to urge through its aperture a selected portion of food, the pylorus is, at all periods of stomach-digestion, a contracted inflection of the transverse coat; through which the more fluid and homogeneous parts of the gastric contents are continually being strained, in small quantities, and at frequent intervals, by a more or less violent muscular effort—by a process, in short, of coarse filtration, aided by mechanical pressure."

In describing the anatomy of the mucous membrane the author confirms (we use the term without implying any priority) Kölliker in some points; but extends the description of this excellent histologist, as to the minute central cytoblasts of the tube lining the gland-cells in the dog, to the human subject, in whom he further points out some peculiarities of the oval epithelia themselves. A careful summary of the chemical characters of the gastric juice follows. Following out the strictly inductive path the author prescribes to himself, the contrasts of the gastric juice with the *liquor sanguinis* suggests to him an hypothesis (or rather summary) of its origin; and leads to a description of its properties, and an inquiry as to the nature of its action.

"In answer to this question we may premise, that it is obviously no simple process of solution by a dilute acid; no mere catalytic influence like that of spongy platinum in the acidification of alcohol; no mere fermentation like that excited by yeast in a solution of sugar; no mere complex acid combining

with protein compounds as bases (as in the 'hydrochloro-peptic' view propounded by Schmidt).

"If we must connect the above details by some theory, we may first remark, that the gastric juice dissolves protein-compounds; that it renders them highly soluble, and that it assimilates their form and reactions to its own, without changing their composition. For any parallel to such a process we can only look to those lower degrees of chemical action, where solution and combination, adhesion and affinity, may be supposed to meet and merge into each other; where proportions are tolerably definite, but true equivalents indistinct; and where, though form is changed and reactions modified, elementary composition remains little affected. Actions of such a kind may be found in the union of many substances with water, or its elements, to form the compounds called hydrates. And the conversion of protein into peptone, by the gastric juice, presents so many analogies to the formation of a hydrate, that it seems not impossible the chief office of this secretion may be, that of enabling water to combine with the various members of the albuminous groups of alimentary substances; in order to their acquiring that solubility, and uniformity of constitution, which must probably precede their admission into the current of the blood."

"It is not impossible that the acid commences the process by a slight, though genuine, solution of the more resisting substances. And at any rate, this constituent seems to have the power of checking putrefaction, if not of arresting all metamorphosis, in the other ingredients of the secretion; like the small quantity of oil of vitriol which is added by the chemist to hydrocyanic acid with the same object."

The nature of the secretory process is only so far gone into as to call forth a denial that the gastric juice consists of expelled cell-growth; and a conjecture that the dimorphous cells—columnar and oval—prepare the acid and organic principle of this secretion respectively.

Lecture I. considers the symptoms of gastric disease generally. After a brief introduction, levelled point-blank at his lecture-room audience, the author treats successively of pain, vomiting, hemorrhage, flatulence. The first he refers to the physiological relations of the stomach; and discusses its origin, locality, character, and distinctness; and the aid afforded by pressure in inquiring into its causes. Vomiting he defines as chiefly and essentially an act of the abdominal muscles: a view in which, five years ago, the author's Essay in the 'Cyclopædia of Anatomy' was in complete opposition to the existing opinions and statements on this controverted subject.

"There is ample evidence that the act of vomiting is effected mainly by this abdominal pressure; which is not only indispensable to it, but (as proved by vivisections) suffices to effect it when reduced to a contraction of the diaphragm, or of the abdominal muscles, or even to a slight muscular compression of the hypochondria.

"The exact aid given by the contraction of the stomach is less capable of determination. That any such assistance not only can be, but often is, altogether dispensed with, it is scarcely possible to doubt. But, on the other hand, it seems equally certain that the abdominal pressure, to which the act of vomiting is chiefly attributable, is often accompanied, and assisted, by a contraction of the muscular wall of the stomach itself. And as might be expected, observation on man and animals during life shows that this contraction specially engages, not only the pyloric valve, but the neighboring muscular pyloric extremity of the organ; in movements which are probably rhythmic (contraction regularly alternating with relaxation), and peristaltic, and which there is certainly no sufficient ground for supposing to be ever anti-peristaltic."

Hæmorrhage is chiefly considered as regards its semiotic bearing; variable, but small. Flatulence, however, again takes us to Physiology; and brings our author forward with a deliberate and explicit contradiction of the power hitherto assigned to the alimentary canal, of secreting gases. Ingestion of air, decomposition of ingesta, and less frequently, of the secretions of this tube also, are the only three sources of such gases admitted by the author. The

evidence on which he bases this novel view is too long for extraction, but deserves a careful consideration. The view itself leads him to conclude that—

"In respect to flatulence, as a symptom of gastric disease, we may start with these propositions: That the stomach and intestines generally contain a certain quantity of aeriform fluids, derived, in great part, from the decomposition of ingesta. That it is only where they are excessive and troublesome that their presence is strictly abnormal. And that, among the causes of such an abnormal amount of these gases—in one word, of flatulence—the most immediate and obvious are (1st) a quantity of food which is too large, either absolutely, or relatively to the digestive juices of the individual; and (2) a quality of food which (either from existing or nascent putrefaction, or from a peculiar proneness to it, or even from a peculiar composition) favors this change."

Some important hints as to the relation of pain and flatulence follow the above deduction, and end this chapter.

Lecture II. illustrates the circumstances connected with the examination of the stomach after death, and the subject of gastritis.

We quite share the author's opinion as to the importance of a full study of the processes of death and putrefaction; and almost regret his reserve as to "the errors (both in pathology and anatomy) to which" the delicacy, and the mechanical arrangements of the gastric structures, specially give rise. However, Goethe's rule—never to oppose error by any more direct denial than the dissemination of truth—applies even more strictly to professional than to scientific men.

Engorgement, hypostasis, shape and size, mammillation, effusion, gastric solution, putrefaction in the stomach—these are the changes successively studied under the above head. If confirmed, the author's detailed and connected statements bid fair to modify the whole morbid anatomy of the stomach.

"In like manner I must so far anticipate some unpublished researches as to point out, that there are various causes which can respectively oppose and further the solvent effect of the gastric structures, by introducing modifications precisely corresponding in their results to those which we may observe in experiments on artificial digestion. Especially would I notice, that the protection of the tissues of the stomach against its own solvent juice seems to be effected by the excretions—chiefly salivary and biliary—it receives from the neighboring mouth, cesophagus, and duodenum; and that it certainly secretes no alkaline mucus (I would almost say no mucus whatever) in a healthy state. Hence among local causes capable of preventing gastric solution, we may notice: (1), the presence of alkaline saliva and bile in any quantity; and (2), the presence of animal food, absorbing and engaging (in proportion to its minute division or surface) the powers of the peptinous fluids furnished by the organ. And conversely, among influences capable of increasing the solution produced by a given amount of healthy gastric substance, we may mention (what has often concurred in the cases recorded) a vegetable or starchy character of food: (1st), as offering little substance on which the stomach can immediately expend itself; and (2dly), as producing by its decomposition, aided by that of the organ and its secretory contents, an amount of acid such as adds the very ingredient necessary for an energetic gastric solution, to a peptinous fluid itself remarkably deficient therein.

"With all this, however, it must be confessed, that the more energetic and complete cases of self-digestion of the stomach can scarcely be explained, except by supposing a true secretion of gastric juice; by a process which, so far as we know, invariably precedes death, and which is almost always connected with its normal immediate cause; namely, the presence of food in the stomach. Whether injuries of the head, or of any parts of the nervous centres, can provoke an increased secretion of gastric juice, or can evoke it independently of the presence of food in the organ—or, if so, how far such a result would be comparable to Bernard's well known experiment, in which an injury of the medulla oblongata excites an excessive formation of grape sugar by the liver—are questions to which our existing information affords no answer."

Gastritis, rarely if ever present as an acute mucous inflammation, is viewed

as a *modus* of symptoms, discernible in poisoning, and witnessed chiefly in its subacute and chronic varieties. This immunity of the stomach from acute idiopathic inflammation is then inquired into, and contrasted with the frequency and curability of the more chronic varieties, which, in dyspepsia, seem almost of a healthy—at any rate a conservative—import, in their influence on the organism generally.

“Whether any part of this immunity is specifically gastric, and is connected with the solvent action of the stomach on the protein-compounds, I hardly dare to inquire. But we may bear in mind the density of the matrix in which the cylindrical stomach-tubes are packed side by side; and the repletion of these tubes with a twofold cell-growth, such as allows no exudation from the surrounding capillaries to reach their minute calibre, save through a thick mass of peptinous cells, and a thinner but more solid layer of smaller cells. And while, on such a structure I would found a plausible conjecture (remember, a conjecture only) why inflammatory exudation rarely involves the whole mucous membrane, I cannot forbear adding, that careful researches entitle me to conclude that, in all the more subacute varieties of gastritis it is the free mucous surface—the intertubular ridges, the stratum of columnar epithelium belonging to them and to the open mouths of the tubes, and the subjacent vessels—which the inflammatory process chiefly, if not exclusively, affects.”

In the remarks on catarrh, hemorrhagic erosion, and follicular ulceration, the author is again original to the very verge of heterodoxy, if not beyond it; throwing great doubts (so far as we understand his guarded language) on the share of the stomach in secreting theropy mucus from which morbid anatomists have named the first, and on the really follicular nature of the last disorder; and deranging our notions of hemorrhagic erosion, as a very frequent and slight lesion by questioning whether it may not be imitated by congestion and solution of the organ after death. What is to become of the statistics of hundreds of semi-putrid stomachs, collected by some diligent observers, irrespectively of gastric symptoms during life, it is almost painful to inquire. But Dr. Brinton's views await confirmation from others. If they are thus shown to be true, we shall be almost thankful to have been led back from the mere dead-house to the bedside again. Unenthroned by clinical medicine, the niceties of putrefaction can scarcely have any permanent interest save for the worms, or our old friends of the Arabian Nights, the ghouls.

Lecture III., on ulcer of the stomach, is derived from the author's elaborate monograph on this disease, fully noticed in a preceding volume of the ‘Abstract.’ A few additions refer chiefly to etiology and treatment.

Lecture IV., on gastric cancer, again, is partly based on the copious materials used in the author's *Essays on the Pathology and Symptoms of this malady*, in the ‘British and Foreign Medico-Chirurgical Review’ of a few months back. We can recommend this and the preceding chapter as containing a fuller and more exact account of these, the two chief structural diseases of the stomach, than any work hitherto published. The treatment of cancer leads to the statement (by implication) that the disease is often latent, to be roused by specific causes, and is rarely relieved by remedies.

“Looking back at my own experience, I must say that I have done more good by careful feeding than by any drugs in the *Pharmacopœia*. These cases, however, have been chiefly among hospital patients. In other words, they were instances in which the charity of the unprofessional public made me the means of suspending that destitution and wretchedness by which cancer can be produced and aggravated, in the strictest pathological sense of these words. Pray acquit me of exaggeration if I say that, more than once, as certainly as I have seen vaccination reproduce cow-pox, I have witnessed misery, anxiety, and starvation, suddenly rouse into fatal activity a gastric cancer; and that, this cancer having run its course in a few weeks, the necropsy has verified anatomical details, conclusively proving that it must have been present as an unsuspected tumor for months, or even years, during which the patient has literally enjoyed the most robust health. And even in a case of this kind, I have known agony and prostration converted into comparative ease and cheerfulness during the patient's last few weeks of life, by the comforts of a hospital, among which

I especially distinguish light, air, warmth, stimulants, and food of proper quantity and quality."

Lecture V. concerns maladies, some of which are so rare that we may not invidiously distinguish it as chiefly pathological.

"The maladies to which it refers, though exceptional in one sense, are not so in another. For even the rarest among them are not (at least in my judgment) the mere extremes or modifications of a variety of diseases, but rather constitute types and classes for themselves. And not only are they of great pathological interest, but their collected cases are quite numerous enough to afford deductions of much practical importance in the treatment of those more common gastric maladies which are allied to them. I may add, that my remarks are all founded on clinical and pathological observations; and that I hope they throw some new light upon the maladies of which they treat—maladies, some of which are not only obscure in their nature (and therefore little likely to reveal themselves to the casual or one-sided glimpses which their infrequency has caused to be bestowed upon them), but even obscured by the names and descriptions they have hitherto received."

Cirrhotic inflammation, or *plastic phlogitis*, is described by Dr. Brinton in two forms: one affecting the whole organ, another (and far commoner) chiefly or exclusively engaging the pylorus. Of the first he says—

"But what is the pathology of the lesion? Regarding it as (what it obviously is) both inflammatory and gastric, shall we therefore name it *gastritis*; adding (it may be suggested) the term *interstitial*, to distinguish it from inflammation of the mucous membrane? Or, looking to the evidently exalted nutrition and vigor of the muscles, and the thickening of the areolar tissue by a structure somewhat analogous to itself, shall we therefore call it *hypertrophy*? Or shall we look to its hardness to supply us with a name—*sclerosis*? Or find a more characteristic title in the histology of and arrangement of the deposit—*fibroid infiltration*?

"Now, though names are even more important in pathology than in some other sciences (simply because they exercise even more than their customary influence on ideas), it would scarcely be right successively to question the applicability of each of these terms to this lesion, unless for the sake of the inquiry, as well as of its results. But to call such a lesion 'gastritis' is almost as objectionable as it would be to call pleurisy pneumonitis. For the latter termination of the name of an organ ought to be reserved for inflammation more or less specially involving its peculiar structure—that structure which secretes gastric juice in the stomach, and interchanges gases with the air in the lung. While the involvement of the gastric mucous membrane in this disease is inconstant, late, and incidental. Then, again, 'hypertrophy' is clearly a misnomer, both as regards the whole organ, and the areolar tissue; portions of the original mass of which may often be found atrophied and decayed in the new deposit that entangles and surrounds them. While, even in respect to the muscular coat, we have seen that its genuine hypertrophy is not an element of the disease, but an attempt of Nature (so to speak) to remedy or palliate the effects of the lesion: an attempt which appears to be sometimes wanting, and generally temporary. 'Sclerosis' we need not criticize: since, apart from its applying chiefly to the latter stages of the lesion, its etymology affords no sufficient distinction, either from scirrhos, or from calcified deposits. 'Fibroid infiltration' is less objectionable than any of the preceding. But the adjective overstrains an analogy: the substantive misstates a fact. For the histology and progress of the deposit is very unlike fibrin. While not only do we never see it as an infiltration, but what we do see by no means looks like the solidification of the liquid deposit this word ought to connote: inasmuch as it differentiates the various tissues, instead of soaking into all in tolerably equal amount."

"Its other and closer analogue is found in cirrhosis of the liver. In this disease we may trace so close a resemblance to the lesion under discussion, and a resemblance which extends to so many circumstances of the deposit—its nature, its situation, its relation to the vessels, its connection with the portal system, its contraction, its effects on the adjacent original structures—that

really the application of the term *cirrhosis of the stomach* seems by far the best means of connecting its gastric analogue with our existing nomenclature."

"Although any new name is likely to be merely provisional to future pathological discoveries, I would suggest that the inflammation of the filamentous network of areolar tissue ensheathing the vessels, which seems the main characteristic of both lesions, might be well expressed by some such word as *limitis* (from the Homeric *λεω, λεω ex lino factum*)."

Of the second, which many excellent pathologists still regard as cancer, and which we believe Dr. Brinton was the first specifically to distinguish from it, he states—

"In general, the decision turns upon facts by no means difficult to detect or interpret. When we find a lesion, which has been perceptibly present for several years, and in spite of this duration, and of a considerable bulk, has yet failed to fuse the coats of the stomach together; which leaves intact the muscular (if not the mucous) tissue; which extends laterally, but not vertically, in and between these coats, so as to thicken a large extent of stomach without forming any tumor; which tends to condensation and contraction, rather than to circumferential or interstitial deposit, and in contracting shrinks into a quasi-cartilaginous mass, but rarely calcifies, and never softens; which only causes ulceration of the mucous membrane very late in the malady; and lastly, which contains scarcely more cell-growth than the cicatrix of a gastric ulcer, and is not associated with the presence of cancerous deposits in other organs; when many (if not all) of these characters are simultaneously present, there need be little hesitation in refusing, to such a lesion, the name of cancer."

After the symptoms and treatment of this malady a suppurative form is also described; and tumors, atrophy, hypertrophy, are successively considered, before dwelling on the extremely interesting subject of dilatation; the several varieties of which state suggest some novel hypotheses as to its essentially nervous origin. A similarly recondite cause is also assigned to a curious case hitherto unnoticed; double inflammation of the intestinal tube, in which the stomach is usually one of the segments affected.

The last lecture, on dyspepsia, is the least complete (but, to our mind, the most interesting, not to say amusing) of the whole series; and quite explains why Dr. Brinton chose this form of publishing his views. Nowhere but in a lecture-room, and to an attentive and sympathizing class, could any one dare to give so flowing and bold an outline of a difficult (almost a dangerous) subject. The subject, the lecturer, the student, the profession, the outlying quacks, the public at large, are all noticed in turn, wherever they suggest anything of interest to the audience. It is, indeed, chiefly as a critical and suggestive summary of dyspepsia that the author sketches the subject. How far dyspepsia is gastric; how far it is structural; why its symptoms refer to the stomach, and occur in so many diseases;—and especially its subdivisions according to its symptoms, the date of digestion, the kind of food rejected, the gastric fluids expelled (as in pyrosis)—are questions which are briefly considered, without any concealment of the existing deficiencies of our knowledge. The causes, nature, and treatment of the disorder close this chapter, of which we may give the following samples:—

Speaking of medicines and diet—

"If any of you should (not unnaturally) wonder at my bringing into an invidious contrast measures which it is the duty of the physician to combine in the treatment of any given case, let me explain that I do so from a motive for which I hope your sympathy. This particular congeries of maladies (the pathology of which we have found is still, from various causes, less precisely and accurately established than that of most other diseases of the alimentary canal) has for centuries been the subject of more quackery than perhaps any other of the ills that flesh is heir to. Not to dwell upon that liability to differences of opinion which the votaries of medicine proverbially share with those of other arts and sciences, and which cannot but be prominent in such a subject as the therapeutical action of drugs—not to trace (what, I think, the most charitable observer of human conduct could scarcely fail to recognize) the germs of quackery in some of the specifics against indigestion which have

emanated from the ranks of our own profession, I will only remind you of the systematic impostures which live, and thrive, in great part on the treatment of dyspepsia. As a malady which is often slight, almost always easily curable; which peculiarly affects the affluent and luxurious; and is itself sometimes the result of a form of sensuality which perhaps implies, and certainly produces a somewhat enfeebled state of the mind—dyspepsia is, from all these reasons, the vantage-ground of that numerous (but illegitimate) offspring of Esculapius which is sustained by the trumpet instead of the caduceus. Dyspepsia is, indeed, the malady above all others, in which a variety of quackeries work their pretended cures. It is the efficacy of diet and regimen that explains the small nucleus of facts around which they cluster their mendacious statements. And the very same considerations which thus expose systematic imposture, are those which we must recognize, if we would avoid casual error; if we would know what can be effected by drugs in the treatment of dyspepsia, and which drugs we ought to select. With some doubt as to whether those I recommend to your notice will be found by others to possess all the merits which experience leads me to assign them, and with a full certainty that we have much to learn respecting them, I may at least point out with what cautions they are to be appraised.

"A person suffering from dyspepsia takes a certain remedy. He recovers. Therefore he is cured by it. So runs the popular conclusion. But the conscientious physician can accept no such flattering or delusive estimate of his remedy. And if the power of the latter be specifically the subject of inquiry, he asks himself, 'Was the recovery due to that spontaneous amendment which sometimes occurs in this disease, as in most other diseases; or was it due to the diet and regimen adopted simultaneously with the drug? Are its traditional virtues, again, in any degree confirmed by its physiological effects on the healthy subject? And, as regards its therapeutical influence, can it be traced apart from diet? Can it be verified as a matter of frequent experience, and (in the case of the stomach) as an immediate result of its ingestion? Lastly, can it be confirmed by the results of interrupting, omitting, and repeating its administration?' Judged of thus strictly, our remedies would doubtless be fewer in number; and discoveries of new specifics less frequent. But the art of medicine would gain by the extension of its scientific basis. Quackery would lose its chief attractions and excuses, by the exposure of this fundamental delusion of the public as to the cure of disease. The public might become healthier, as well as wiser, by learning that the means of health lie rather in the circumstances with which we constantly surround ourselves, than in rare and exotic drugs. And, lastly, our practice would gain far more than an equivalent for a mere number of remedies in the increased skill and efficiency which would result from concentrating our study on the best way of wielding a few of tried and unquestionable virtues.

"Such a scrutiny of our Pharmacopœia would no way affect its value, save to place it, if possible, on a still more irrefragable basis. Nor do those occasional results of the *vis medicatrix Naturæ* (aided perhaps by diet and regimen) which are vaunted as cures by the homœopath, or which may be deduced from the far rarer (but more trustworthy) observations of our own profession on the natural history of disease, by any means disprove the value of drugs as the armament of the practical physician. He has not to answer the abstract question—whether nature and diet can accomplish the cure of disease—but to discharge the practical duty of insuring this contingency by every means in his power. And, taking our medicaments at their lowest value, there can be no doubt that their proper use tends to bring about this desirable result more certainly and quickly than would otherwise be the case; sparing suffering; abridging convalescence; and saving the many lives which would succumb before the arrival of less rapid and complete relief. Even in dyspepsia, the palliative effects of drugs are far too precious to be dispensed with. While as regards their less measurable tonic and alterative effects, those who have witnessed their influence among the dyspeptic poor, and against all the terrible concomitants—scanty food, foul air, excessive toil, and intemperance—dyspepsia here possesses, must know that it would be a mockery to restrict this

important class of our patients to regimen or *hygiène*. To tell an idle and wealthy dyspeptic that his malady might ultimately be cured without drugs, would be a hardy statement, but sometimes a true one. But to recommend dyspeptics in general to dispense with all medicines, would be not only illogical, but absurd; indeed, considering the circumstances of most of our patients even in the affluent classes, scarcely less foolish or cruel than to withhold a rope from a drowning man, and to advise him to save himself by building a boat."

Speaking of alcoholic and other stimulants—

"Secondly, as regards the general or constitutional effects of these substances, pray understand clearly that I neither deny nor affirm that there are grounds (moral, social, or what not) for separating and distinguishing their action; and that, in classing them together, I am doing so purely on such physiological grounds as would oblige me, if I were addressing a Chinese audience, to add opium to the list. Tobacco may be the exponent of all the vices; and tea a fertilizing liquid which, applied in proper quantity, encourages the growth of all the virtues. While in respect to the ethics of alcoholic liquids, professors of Teetotal exegesis may explain away those opinions, as to the lawfulness and expediency of such drinks, which have been handed down to us from the wisest and best of mankind—from Paul, and Solomon, and a greater than Solomon—may show that the text of the Evangelist is garbled, and (reversing both the miracle and its motive) turn wine into water to suit their narrow and gloomy views. But we have to consider such questions from a different aspect: and may sum up the chief effect of all these agents in the theory, that, despite great differences of detail, they have much in common. With little convertible material, little substance which the organism can assimilate, they all seem to modify nutrition in much the same way: diminishing the measurable waste of bodily substance, and especially reducing the excretions of carbonic acid and urea which chiefly express that waste, to a quantity below the respective amounts which would otherwise be habitually evolved."

"Without digressing any further toward this wide subject of the action of alcohol and its congeners, I may state that experience shows their local effect upon the alimentary canal and upon digestion to be, on the whole, unfavorable: while their general effect of altering (if not disturbing) the balance of nutrition, is often scarcely less detrimental to this function. That they are used by the majority of mankind, and that their moderate enjoyment is quite compatible with health, are facts which by no means countervail this proposition. And that the advantages of their general effects often preponderate over the troubling disturbance they produce locally—that, in short, they are sometimes useful remedies against the very ailments which their abuse (or even their moderate use) can otherwise bring about—is a statement which, while it involves no inherent improbability, rests upon an empirical basis such as defies disproof."

"As to the use of alcohol in dyspepsia, while freely conceding that every case is a rule to itself, and must never be decided on general principles, I would offer the following hints: First of all, let me beg of you on no account to endanger the welfare of a patient who has been rescued by Teetotalism from death, by prescribing alcoholic drinks in any form whatever. I have known one or two awful relapses, and inconceivable misery (both to the patient and his family) produced by a carelessness of this kind. It is much better that you should candidly inform such a one that his laudable self-denial requires certain precautions; that it requires a parallel temperance in eating; and that, just as a moralist might doubt whether the reformed drunkard is entitled to substitute intemperance of thought and speech for intemperance of act, or to replace the privacy and penitence which befit a repentant debauchee by the public rituperation of what others have made a lawful and innocent indulgence—as the physician looks upon him as merely substituting one error for another, if, from drinking to excess, he takes to eating too large or luxurious a food. Indeed, supposing the Teetotaler's avocations do not demand excessive and continuous toil, he digests so much more completely out (at least such is my opinion) what he does take, that he requires less (rather than more) food than

a person in affluent circumstances who moderately indulges in alcohol; while he certainly has but one safeguard which alcohol affords against the immediate results of over eating."

Of regimen -

"There are many other measures, such as we include under the term 'regimen,' which are of extreme value in the more protracted and obstinate cases of this distressing malady. The importance of fresh air, of exercise, of the proper regulation of the functions of the skin, of the observance of a period of rest after meals, of the repose of an habitually over-taxed brain, and various circumstances of like nature—claim attention under this head. So, also, much might be said of such remedies as foreign travel, mineral waters, and the cold-water treatment. Mineral waters as therapeutical agents can hardly be valued too highly. It is certain that many of them are sustained, without inconvenience, by stomachs far too irritable to support the artificial mixtures prepared by the druggists in accordance with our prescriptions; and equally certain that they introduce into the system considerable quantities of the very remedies (chalybeates, salines, and aperients) which we are compelled to resort to as remedies in many varieties of dyspepsia. And whatever their 'alterative' powers, the circumstances which attend their administration are scarcely less beneficial; and especially permit the enforcement of rules of life, which we sometimes despair of our patients following, so long as they pursue their ordinary avocations, and mix in their customary society. The effects of pure water (as applied externally and internally by the hydropaths) in dyspepsia have yet to be ascertained. Judging from the evidence at present accessible, it might sometimes be of benefit. But I need hardly say that, applied by persons who make it a system, and regard it as a cure for all diseases (at any rate a substitute for most other means of treatment), we cannot expect that selection of suitable cases, which would render its results either safe to the patient, or conclusive to the profession. And from analogy and experience we may safely assert—that most (if not all) of the benefits ascribed to it are equally explained by the fresh air, mental quiet, early rising, simple food, and copious exercise, which the subjects of the hydropathic course adopt, in conjunction with packings and douches:—perhaps after having steadily disobeyed every such recommendation on the part of their more legitimate advisers for months and years before."

After this analysis it is scarcely necessary to add that in our opinion this essay of Dr. Brinton's is a really good book—a book which is at once philosophical and soundly practical.

On the Pathology of the Urine. By J. L. W. THOMIENUM, M. D., Lecturer on Chemistry in the Grosvenor Place School of Medicine. (London, Churchill, 8vo., pp. 429. 1858.)

It is not surprising that, at a period when organic chemistry is pursued with ardor and success, and with an enthusiasm which belongs to what may almost even now be considered a new science, so much attention should continue to be paid to the chemistry of the urine. It is a fluid complex in its composition, and ever-varying in its appearance under the several disturbing causes of disease; and from the earliest times the marked alterations which it exhibited in its physical properties under different circumstances, have offered to the physician the hope of estimating through its modifications the special characters of disease. Year by year, since the first accurate analysis was made by the celebrated Berzelius in the beginning of the present century, the chemistry of the urine has assumed increasing importance, and that in relation both to physiology and pathology.

It might be supposed that after the labors of such chemists and physiologists as Fourcroy, Vauquelin, Becquerel, Simon, Lehmann, Secherer, Vogel, Marquet, Prout, Liebig, Golding Bird, Bence Jones, and many others, that the chemical investigations of the urine were complete, and that except for the purposes of some special diagnosis, any further works on the chemistry of this excretion would be superfluous. At the same time, we do not hesitate to say

that Dr. Thudichum's work, although it offers no new discovery, nor any novel methods of analysis, will nevertheless be welcome to the library of the scientific practitioner, and accepted as a very valuable contribution to the chemical literature of the day. The arrangement of the work is both lucid and methodical, and one of its greatest merits will be found in the clear and succinct description of each constituent of the urine—a description embracing its history and literature, its chemical composition, its physical and chemical properties, the most approved method for isolating or obtaining it, its decomposition, its form of crystallization, its physiological relations, the quantity discharged in health and disease, the nature of the deposits, its forms, if any; and, lastly, the pathological indications to be gathered from its presence.

The work comprises forty-six chapters. After giving the general physical characters of the urine, its clearness, turbidity, &c., with the colors and tints of the urine, which are illustrated by a plate of chromo-lithographs after Vogel, together with his table for the determination of the quantity of uræum in the urine, the author gives in detail the best methods for collecting the urine, with tables showing the total quantity of urine discharged in a given time in healthy individuals. The determination of the amount of solids in a given quantity of urine by direct experiment, and inferentially by calculations based on the specific gravity, are explained at length in the second chapter. Each of the succeeding forty-four chapters is devoted to the consideration of a separate constituent, for to this number, and even more, may the possible ingredients of the urine extend. These may severally be considered as—

1. Those which are natural to the urine.
2. Those which are foreign to it, or superadded, as the result of disease or lesion of the urinary organs or passages.
3. Those which are accidentally derived from articles of food, drink, medicine, or poison.

The chapters on urea and uric acid, the chief and most characteristic proximate principles of the urine, are the most interesting and useful in the book. After giving a complete chemical history of urea, the various methods for obtaining it artificially, together with the various combinations it forms with bases, acids, and salts, the author proceeds to the diagnosis of urea in urine, and other animal fluids. He gives Liebig's methods for determining the presence of urea in fluids, and gives the preference to the nitrate of the protoxide of mercury process for ascertaining the absolute quantity of urea present, as recommended by that distinguished chemist. Dr. Thudichum speaks of this process as requiring no particular ability on the part of the operator, and recommends it for its ready applicability. In the hands of a practical chemist, and with all the appliances of a laboratory at hand, it is simple enough, but it is not so applicable in general practice, whether in hospital or private, as Dr. Davy's method, which the author gives at page 69. This method is founded on the fact that urea is very readily decomposed by the hypochlorites of soda, potash, or lime, and its constituent nitrogen evolved in the gaseous state. From the quantity of gas evolved, the amount of urea is estimated.

On the subject of the physiological or standard quantity of urea, the author says:—

"Numerous experiments have shown that a healthy man, who lives well, discharges from 30 to 40 grammes of urea in twenty four hours, which, calculated upon one hour, gives 1.25 to 1.66 gramme. This average must, of course, vary a little according to the size of the individual; and in the individual it must depend on accidental circumstances, which will sometimes change it, and in rare instances will produce extreme maxima and minima. But for practical purposes the above figures are valuable, even though subject to the variations mentioned. It would be a much better basis for comparative researches at the bedside, if the average amount of urea could be expressed in proportion to certain units of weight of the body, say pounds or kilogrammes, or units of measure of length of body, say centimetres. But many experiments will be requisite before such a basis can with safety be given.

"It would be useless here to enter into any speculation or theory on the mode and place of formation of urea in the system. We leave it undecided

whether it is made in the blood, or blood-corpuscles, or in the muscles, however important the decision of these questions may be. But one great fact is undoubtedly established; namely, that as urea is the principal product of the metamorphosis in the body of nitrogenized food, the quantity of urea must stand in a direct relation to the quantity of food taken, or, if little or no food be taken, to the amount of nitrogenized component parts of the body disintegrated in the place of food. In this sense must be taken the expression that urea is the measure of dissimilation, if I may be allowed to use this term as the antithesis of assimilation. 'Der Harnstoff ist das Maass des Stoffwechsels,' says Bischoff. And this is so nearly true that (with a slight modification of the sentence) we may say—the amount of urea is the measure of the most important part of the change of matter in the system. The intensity of the change is expressed by the amount of urea in the urine. More urea is produced during waking than during sleep, more during bodily and mental exertion than during an equal period of inactivity. A large amount of nitrogenized food taken into the stomach will increase the amount of urea above the average; and a small amount of vegetable food will make it sink below the ordinary medium.

In calculating the discharge of urea with regard to time, we must take care not to lose sight of the fact that the production of a given quantity within a certain time may appear larger or smaller according to certain circumstances, which retard or facilitate the secretion of the kidneys. If the amount of fluid discharged as urine become very small, the amount of urea discharged in a given time will also be smaller too, owing no doubt to a part of the urea formed being retained in the system, particularly in the blood and muscles. If, on the contrary, the kidneys have to discharge a larger amount of water, the total quantity of urea will be raised above the average; because an amount of urea which, under ordinary circumstances, would be retained in the system for a time, is discharged with this increased bulk of water. This is the case for solids generally, and we may well say that a large quantity of water acts as a diuretic so long as there are soluble substances in the blood to be carried away with it."

Of excess or deficiency of urea in the urine, the author says:—

"If the amount of urea remain above or below the average for any length of time, so that the possibility of an accidental variation is excluded, it is a symptom of disease.

"I will first consider the excess of urea. It is common in the *stadium incrementi* up to and over the acme of all acute febrile diseases, such as typhus* and pneumonia, &c.; and the total quantity of urea discharged in twenty-four hours may amount to 50, 60, or 80 grammes (A. Vogel, being double the amount of that discharged during health. This increase becomes a more important feature of disease, when the ingestion of nitrogenized matter falls to a minimum at the same time; in other words, because these patients have mostly no appetite, and if they have, are obliged to restrain it by the dietetic rules of their medical attendant. As soon, however, as the fever has abated, the amount of urea will sink; and that the lower below the normal quantity, the less food the patients are able to take from the continuance of loss of appetite, or from the inadequacy of the organs of digestion to perform their task. But as the patients recover appetite and strength, the amount of urea rises to its usual height. The same process is observed during the exacerbations of chronic disease, which in fact constitute an acute episode in the long train of symptoms. So an exacerbation of phthisis may be accompanied by urine similar to that of an attack of pneumonia, containing an excess of urea.

"But in diseases which are chronic and accompanied by impaired nutrition, the amount of urea sinks below the average.

* Dr. Alfred Vogel, *Harnuntersuchungen nach Liebig's neuer Methode*. Heule und Pfeuffer, 'Zeitschrift für rationelle Medicin,' Neue Folge, Band 1, 1864, p. 362. Also the same author's 'Monograph on Typhus.'

For some particulars, see the review of Dr. Stromeyer's work on Typhus, in 'Assoc. Med. Journal,' 1856, p. 48.

"The lowest amount of urea which I have ever observed to be discharged by a patient during twenty-four hours, was 75 grains in 200 fluidrachms of pale, faintly alkaline urine. This was from a lady suffering from an ovarian tumor, for which she had been salivated several years ago. The growth of the tumor had been arrested since that time, but an anæmiated condition of the body had established itself, against which all treatment was tried in vain.

"So low an amount of urea as 75 or 90 grains in twenty-four hours generally only occurs towards the fatal end of diseases, when not only the production of urea is very limited, but also the excretory activity of the kidneys begins to become languid.

"The diminution of the quantity of urea may, however, be due to the failure of the excretory activity of the kidneys only, though at the same time an excess may be produced in the system. The excess is then retained in the blood, tissues, and juices of the body, and causes the cachexia commonly known as *uræmia*, which, if it be true that the products of decomposition of urea, namely, ammonia and carbonic acid, are the *materia et causa morbi*, had better be called *ammonæmia*. When urea is retained water is also mostly retained in part, and by its effusion into the cavities and cellular tissue, causes dropsical disease. Urea may be detected in most secretions, excretions, exudations, and effusions. It is the same with dropsical effusions from other causes: they contain in solution an amount of urea derived from the blood, but in those cases the impairment of the excretory activity of the kidneys is a secondary symptom, and scarcely ever causes that amount of retention of urea which may lead to *uræmia*. And even then the kidneys may be stimulated by diuretics or by exercise, or a spontaneous rally of the system may revive their excretory activity, when, with a large amount of urine, a proportionally large quantity of urea, which has been accumulated in the system, may be discharged. The amount of urea will here indicate the amount of depuration effected, just as in retention of urea the smaller amount discharged will allow us to calculate, taking the whole case into consideration, the amount produced, and, by subtraction, the amount retained in the blood."

The chapter on uric acid is worthy attentive perusal. After giving a general outline of the history and literature of uric acid, the best methods for obtaining it pure, and the sources from which it is usually derived, the subject of its crystallography is fully entered into.

The account of the salts of uric acid, the urates, those of ammonia, soda, and lime, follow.

Dr. Thudichum adopts Scherer's opinion, that the deposit of uric acid after emulsion, is the product of a peculiar kind of fermentation. He says:—

"As uric acid cannot be secreted by the kidney from the blood in any other form than that of a soluble acid urate, it must always arrive as such in the pelvis of the kidneys. The intervention of a stronger acid is now required to separate uric acid from its base. That the ordinary acidity of the urine should not be sufficient to effect this, nature has taken care to arrange. Whence, therefore, does the acid come which in urine of average description after some hours or days of standing produces a precipitate of uric acid? Scherer* has shown that this acid is the product of a peculiar kind of decomposition or fermentation of the urine, which he called the *acid fermentation* just because its main feature is the production of one or several acids. The ferment he considers to be the mucus, which causes the coloring matter of the urine to ferment, and to give off among other substances lactic and acetic acid. Under the influence of these acids, uric acid is precipitated sooner or later, according to the time at which the decomposition of urea begins to neutralize the acid formed. The decomposition of urea constitutes the *alkaline fermentation*, a process which we have already described in the chapter on alkaline urine. An important fact is, that if the alkaline fermentation succeeds the acid one, any uric acid precipitated is transformed into urate of ammonia. Of the alkaline fermentation I shall have to treat more at length under the section on triple phosphates."

* 'Annal. d. Chemie und Pharmacie,' Band xlv, p. 171.

The subject of uric acid concretions, and those of urate of ammonia, soda, and lime, comprehends the most recent views on the formation of these calculi.

The occurrence of the alternating layers of uric acid and urates in mixed calculi is thus explained:—

"These layers are due to the same causes as the massive concretions. But there seems to be one cause of the occurrence of urates to which it is necessary to advert, before concluding the chapter on uric acid. Ammonia at the temperature of the body very quickly changes uric acid into urate of ammonia. Let us apply this to a uric acid stone. The urine in calculous disorders very frequently becomes alkaline; nay, if the disorder last long enough, alkaline decomposition of the urine in the bladder is almost always present. In evidence of this, almost one half of all calculi possesses a cortical layer of mixed phosphates, the consequences exclusively of alkaline urine. Now there can be no doubt, that if a uric acid stone become the cause of such disorders of the urinary passages as will induce alkaline fermentation in the urine, the outer layers of this stone must be transformed into urate of ammonia, and this urate of ammonia (or soda) would undoubtedly be dissolved and carried away, unless the carbonic acid present diminished its solubility, and if the urine were dilute enough to act as a solvent, i. e., were not itself too much saturated with the urates. A stone with a uric acid nucleus, a body of urates, and a cortical portion of mixed phosphates, is to my understanding the type of this process, and suggests to me the following history: In the beginning there was a renal uric acid concretion, which increased by the acid fermentation in the bladder. Then the calculus caused disorder of the bladder, or of the urine (as by excessive treatment with alkaline remedies), which ended in the establishment of alkaline fermentation in the bladder, by which the outer layers of the uric acid concretion were first transformed into urate of ammonia, and afterwards encased in a crust of mixed phosphates."

In the chapter on creatine in the urine, there are some interesting remarks on the pathological indications of this substance in relation to spasmodic and convulsive diseases. Creatine occurs in the muscular tissues of all vertebrate animals. It is most abundant in those in whom muscular exercise is greatest; it is, therefore, more plentiful in wild animals than in tame. In hunted animals, the fox, the deer, the hare, it is greater than in domesticated animals. The heart, a never-resting muscle, appears to contain a larger proportion than other muscles. Creatine is a constituent of the urine, and appears, therefore, as a strictly excrementitious product; it is a product of the chemical changes in the muscles. The pathological import of these facts, the author very properly suggests, may be made available in estimating the intensity of certain spasmodic diseases. Of the quantity discharged in twenty-four hours, he says—

"This question seems of sufficient importance; but few observations have been made on it. My own experiments, detailed at the end of this chapter, yield 0.505 gramme of creatine discharged in the urine during twenty-four hours, as the average of twenty-six days of two individuals. In disease the quantity of creatine, together with that of creatinine, might serve to indicate the intensity of any spasmodic or convulsive action. The question as to its quantity in tetanic and epileptic diseases is one of high interest. Cases of paralysis agitans, in which the spasmodic action ceases with sleep, may perhaps afford good opportunities for demonstrating the influence of rest and motion; though the different nutrition in the muscle may, perhaps, vary the chemical changes in some degree.

"These suggestions for future researches must not be mistaken for theories or suppositions."

The author's views on the subject of the coloring matter of the urine, the *urumatinæ*, are identical with those of Vogel. Hippuric acid, chlorine and the chlorides, sulphuric acid and the sulphates, with phosphoric acid and its salts, occupy as many chapters, which are followed by one on the alkalies and alkaline earths, potash, soda, ammonia, lime, and magnesia.

The substances hitherto described are common to healthy urine, and it is their deficiency or excess which constitutes a pathological condition.

The succeeding chapters, commencing with blood and its anatomical elements (chapter xvii.), are devoted to substances which are foreign to healthy urine, and the mere presence of which imply disordered function or even serious disease.

In a work so eminently chemical, and so meritorious in this branch of investigation, it is no discredit to the author that those portions of the work which are more purely pathological, and which derive less aid from chemical research than from clinical experience, should leave on the mind a sense of deficiency, which is perhaps increased by the fulness and completeness of the chemical analyses.

In all that relates to the chemistry of the blood in the urine, the same completeness is manifested which graces other parts of the volume; and the same may be said of the chapter on albumen; but the pathological indications of blood in the urine, and of the presence of tubercles, must be considered but as a summary of Dr. George Johnson's observations on these subjects.

The chapter on grape sugar contains very clear directions for the quantitative determination of grape sugar in the urine, and there is a very good description of the method of using Biot's polarizing apparatus as manufactured by M. Soleil, of Paris.

From a chemical point of view, the nature of those pigmentary matters which are occasionally found in the urine, and to which the names uroanthine, uroglucine, anholine, have recently been given, formerly known as cyanurine and melanourine, is still surrounded by obscurity. Dr. Thudichum brings the researches of chemists down to the present period, but leaves the pathological indications of these exceptional matters untouched. The limits of this notice do not permit us to do more than to commend the chapter on oxalic acid and the oxalates to the attention of pathological chemists, and to reiterate the opinion already expressed, that this work of Dr. Thudichum's, as a contribution to the chemistry of the urine, is the most complete and the most useful of any hitherto published in England. We cannot forbear expressing our regret, however, that the author should throughout the work have employed French terms for his measures of length, capacity, and weight. To many this will be a serious drawback. The work is addressed to English readers, and although to the practised analyst the conversion of these terms into English equivalents is an easy matter, yet the general body of the medical world, for whom the work is intended, will find the utility of the work lessened by the employment of French instead of English measures.

The Vegetable Parasites of the Human Skin. By Mr. JAMES HOGG, Assistant Surgeon to the Charing Cross Hospital. ('British Medical Journal,' 29th March, 1859.)

In this interesting and important communication Mr. Hogg proposes, *first*, to sketch the history of parasitic vegetable growths in diseases of the human skin; *secondly*, to inquire into the truth of the theory founded on the observations of foreign physicians, which attributes certain forms of skin-disease to the ravages of a vegetable parasite, as their origin, cause, and pathognomonic character; and *thirdly*, to offer a few remarks on the natural history of vegetable parasites, with a view to illustrate the subject by analogy.

It is now more than twenty years since Bassi of Milan discovered the vegetable character of a disease which caused great devastation among silkworms; and, about the same time, Schönlein of Berlin was led to the detection of certain cryptogamic vegetable formations belonging to the order *Fungi*, accompanying the development of certain diseases of the skin. The observations of this distinguished man have been confirmed by Gruby, Remak, Langenbeck, Robin, Knechtumster, and other continental writers; as well as by Dr. Hughes Bennett, of Edinburgh, and Drs. Jenner, Gull, and other English physicians, most of whom have attempted to identify the fungus with the disease believed to be produced by it, and in this way to separate and detach some four or five of the most common chronic skin-diseases from the rest, and to regard them simply and exclusively as *fungoid* or *parasitic diseases*.

This very tempting theory involves an important principle of pathology, inasmuch as it places the pathological fungi in a category by themselves, and invests them with characteristics entirely at variance with those of the natural history of the family of fungi, whose leading feature appears to be that of selecting disease and decay as the soil which is essential to their existence; whereas this hypothesis describes them as preying upon healthy organized matter, and thereby establishing specific diseases.

In examining into the truth or fallacy of this theory by the light of physiology, we must bear in mind that the surface of the human body is supplied with a delicate covering, one office of which is to excrete and another to allow the exudation of effete matter from the blood. The excretion consists chiefly of microscopic epithelial scales; and the exudation is composed of gaseous matter, which sometimes becomes condensed and dried on the surface of the epidermis. The scales are friable and separable under very slight friction during health; and the transpired fluid makes its free escape, under ordinary circumstances, without any assistance from without. But want of cleanliness, deficient exercise, and, much more frequently, a cachectic condition of the fluids of the body, interfere with the natural processes of elimination; and then the skin becomes diseased, and in this diseased condition is often infested with parasitic fungi, the filaments and spores of which are found imbedded in the epithelial scales of the epidermis, enveloping the hair bulbs and often traversing the hair itself, which is then more or less abnormally secreted, and deficient in organic matter.

Is this diseased condition the result of the ravages of the parasite? or is the parasitic vegetation the result of disease? This is a question of some practical importance; for, if the disease is produced by the parasite, we have only to destroy the latter, and the disease will be perfectly eradicated, and cease. If, on the other hand, the parasite only acts the part of a scavenger, whose work it is to remove the *materia morbi*, then we have to rectify the condition on which the disease depends, and the parasite will starve for want of nourishment.

Authorities are not wanting on either side of the question. Dr. Hughes Bennett maintains that all such vegetable formations are secondary, and always arise in living animals previously diseased. Dr. Gull contends, on the contrary, that the parasite is the sole cause of the disease; and Dr. Jenner has committed himself to the same opinion. Mr. Wilson differs again, and entirely ignores the existence of vegetable parasitic growths in skin-diseases; and endeavors to prove—somewhat imperfectly, in Mr. Hogg's opinion—that the cylindrical tubes "seen under the microscope are nothing more than a splitting up of the middle or fibrous layer of the hair, and its oval-shaped cells, closely packed together, and arranged in a linear order." Had Mr. Wilson submitted his specimens of disease to a closer examination, and employed polarized light with the microscope, he might easily have convinced himself that his view of the diseased hair was not quite correct.

The question, however, must be determined, not by authorities, but by further observations.

"During the last two years, with a special view to this question," says Mr. Hogg, "I have been engaged, with my friend Mr. Hunt, in making microscopical examinations of the products of cutaneous diseases appearing in the patients attending his practice at the Western Dispensary for Diseases of the Skin; and the result is, that I feel strongly inclined to the opinion that the vegetation found on the skin and hair is not primarily the cause, but rather the result, of disease.

"I will now endeavor to show on what grounds this conclusion has been arrived at.

"1. If there be any exceptions to the general law, that parasites select the subjects of debility and decay, such exceptions are not found among vegetations belonging to the order *fungi*, which invariably derive their nutriment only from matter in a lowered state of vitality, passing into decomposition, or wherein decomposition has already proceeded to some extent.

"2. That the growth of these fungi is not necessarily pathognomonic of a

special disease, is obvious from the fact of their having been observed in nearly all kinds of chronic skin-disease. Thus, out of twenty cases of lepra and psoriasis, in which the products were examined, evident traces of fungoid vegetation were observed in ten. The same growth was noted in two out of three cases of lichen, also in four out of six cases of eczema, in one case of ichthyosis, and in one of spilus. None of these diseases have been supposed to be caused by fungi; and yet fungi were present in the greater number of the specimens examined.

"2. Other observers, some of them highly competent, have not been able to find them in the diseases they are believed to engender. Thus Malherbe, Cazenave, and Wilson, deny the existence of a vegetable fungus in *porrigo scutulata* (the common ringworm), although this is described and depicted under the name of *trichophyton tonsurans* by trustworthy observers. Cazenave, Didot, and Wilson deny the existence of the *achorion Schönleini* in *favus* or cupped ringworm. Wilson and Cazenave deny the existence of the *microsporon Audouini* in *porrigo decalvans*. In reference to the statements of the latter observer, Cazenave, it must be borne in mind that he candidly acknowledges his ignorance of the microscope; and, not to make an unfair use of this negative argument, I must confess that I have seldom been disappointed in finding some kind of fungoid growth in all the diseases supposed to be produced by them. Nevertheless, such is the general similarity of form and growth of the fungi in the specimens examined, that I have failed to make out any relation between the special variety of parasite and the particular disease whose name it bears. Thus, in a case of *porrigo* in a girl of 16, which had existed for nine years, from neglect and dirt, I found, not a porriginous variety, but the fungus described by Robin and Küchenmeister as peculiar to *phlea Polonica*—a disease almost unknown in this country. Again, in a case of *tuca tarsi*, I found spores of the fungus described by Aristen as the *puccinia favi*. Robin also found in *favus* the *puccinia* occurring together with the *achorion Schönleini*; the latter presenting itself as a constituent of the cups or crusts, while the *puccinia* occurs afterwards on the desquamation of the epidermis. And this is thought by some to warrant the opinion that the *achorion* is only the spermatogenous form of the *puccinia favi*. But, further, it is broadly asserted by others that the several morbid conditions observed in chronic diseases of the skin are mutually convertible; and that lichen, eczema, impetigo, psoriasis, lepra, menagra, etc., are but modifications of one and the same disease, resulting from accidental conditions, and not always found perfectly distinct; nay, so often are they combined and complicated with each other, that dermatologists have assigned special names to some, indicative of their mixed character, such as *eczema impetiginodes*, *eczema leproides*, *lichen urticatus*, *erythema papulatum*, &c.

"It may be said, that most of the cases examined by Mr. Hunt and myself should be referred to the last-named forms of disease; and, therefore, the finding of parasitic fungi might have been, *a priori*, expected; indeed, ought to have been found. Having had this contingency in view, Mr. Hunt gave me specimens taken only from well-marked cases; and the morbid products of these were conjointly examined and sketched under the microscope.

"The objects were examined both wet and dry, with reflected and with transmitted light, rendered achromatic and carefully arranged to avoid error (distortion, &c., and with a magnifying power of from two hundred to four hundred diameters in almost every case. The products were obtained, in scaly diseases, by gently removing the half-detached scales; in most eruptions, by simply placing the discharge on a slip of glass; in diseases of the hair, either of scalp or beard, by uprooting the hairs, and examining with as little disturbance as possible.

"I will now enter on a short analysis of the cases examined.

"*Favus*.—At the head of my list stands *favus*—a disease better known to continental writers than to us, and said by them to be caused by the *achorion Schönleini*. In this country it is so rarely seen, that neither at Mr. Hunt's dispensary nor in private practice have I been able to meet with a case for examination; so that this disease, which we find most carefully described and the vegetable nature of which Schönlein has the merit of having been the dia-

coverer, as also of exhibiting the fungus in the form of mycelium-filaments and granulated struma, I am compelled to dismiss with this brief notice.

"*Alopecia (porrigo decalvans)*.—In eleven cases of alopecia, the hair on the margin of the bald patch was submitted to examination under the microscope. In three of these cases, one of which was the product of syphilis, no fungoid growth could be found. In the other eight cases, filaments and sporules were most unmistakably present.

"*Porrigo scutulata (tinea tonsurans)*.—In nine cases of porrigo scutulata, the hair was examined. Fungoid vegetations, or vestiges of them, sometimes with sporules, sometimes without, were observable in each of these cases, but in three of them they were imperfectly developed.

"It may here be observed, that the filaments of the *trycophyton tonsurans*, said to be the cause of this disease, are described as found in the substance of the roots of the hair, and spreading longitudinally upwards; whereas the *microsporon Audouini*, the supposed source of the porrigo decalvans, forms a tube round each hair outside the follicle, not in the substance of the hair. I have not been able to verify these distinctions. On the contrary, on comparing many specimens of these diseases with each other, I have always found filaments springing up from the bulb, and then growing up around or along the hair, sometimes longitudinally in bifurcating branches nearly straight, sometimes in tortuous or spiral forms, with or without spores. In both diseases, the bulbs of the hair itself were variously decayed and deformed.

"*Pityriasis versicolor (chloasma)*.—Seventeen cases of this disease contributed specimens for examination, in all of which vegetations were observed, and in several of them the fungus named *microsporon furfur*, supposed to be the cause of the disease, was clearly identified. This fungus is said to have been discovered by Eichstedt in 1846, and is described as exhibiting spores piled up in groups or heaps; and, although Robin himself could not find this parasite, I acknowledge that the characteristic grouping of the spores had been distinctly marked in most of the specimens I have examined. But, although this piling up of the spores may be in some measure identified with the disease, it does not follow that the disease is caused by the fungus, which may merely find in this form of disease a suitable soil for its growth and fructification. The fungus may be destroyed again and again by soaking the skin with a nitrous acid or mercurial lotion; but, unless attention is paid to the state of the blood, no lotions will cure the disease.

"*Mentagra (tycosus menti)*.—The hairs were examined in six cases of this disease, and in all were broken or bent, and covered by fungoid growths. The roots of the hair were closely invested with spores and filaments, spreading longitudinally outwards and upwards. Both the filaments and spores are described as larger than those of the *microsporon furfur*, and they are said to form a sort of vegetable sheath to the hair below the skin only. This latter description is graphic and true; but I should hesitate to admit that the mere size of a vegetation can entitle it to be considered a separate species; for it may depend on the age, the growth, or on some peculiarity of the soil, just as the *polypodium filix mas*, or common male-fern, may appear in a dry barren soil as a delicate plant, and yet, in a damp and shaded situation, with a congenial soil, it may assume the appearance of a gigantic shrub, several feet in height. Moreover, the hair itself, as well as its follicles and root, was found in several instances, exhibiting tufts of fungi growing on its surface.

"*Psoriasis*.—Thirteen specimens were examined. In seven of them, filaments and sporules were clearly discernible; in the other six, epithelial scales only. These filaments and sporules were in no respect distinguishable from those found in the various diseases already described, and to which they have been said to be peculiar.

"*Lepra*.—Seven specimens were examined: there were found filaments and sporules in five of them, and in two of them epithelial scales only. These vegetations also were very similar to those found in psoriasis—another name, in fact, for the same disease.

"*Ichthyosis*.—In one case of this disease filaments were found, clearly showing that a congenital disease or malformation may, under certain circumstances, prepare a soil for fungoid growths.

"*Lichen*.—In two cases out of three, fungoid growths were visible, similar in character to those already described.

"*Syphilis*.—In two cases examined, one exhibited very fine hairs, with peculiar masses of a fine pigment surrounding the shaft of the hair, and others were covered by granular matter; another had filaments of a fungus, with a few spores scattered over the masses of epithelial scales.

"*Eczema*.—In four out of six cases, fungoid appearances were observable; in one of them also were masses of spores; and in another a cast of a hair was observable, the hair having escaped, and the cast being composed of beautiful filaments, which had embraced and encircled the hair precisely after the fashion described in *porrigo decalvans*, although there was here no baldness. In fact, the arms, and not the scalp, were the seat of the disease.

"*Tinea tarsi*.—In five cases of *tinea tarsi*, two out of which were associated with *eczema* in children, in three were found mycelia, filaments, and spores, associated with epithelial scales and granular matter; in one, an isolated spore of a fungus, described by Arden as that of *puccinia fari*, the spores of which are almost if not quite identical with those caught on my glass slides suspended in the air.

"As to the growth of these parasites on the *healthy skin*, most conclusive experiments have been made, the results of which go far to prove that the skin of persons in health and vigor does not afford the required conditions for them to take root in it; that inoculation succeeds only in those places where pustules have been previously formed. Remak and others repeated the experiment of inoculation over and over again, and found it always failed in the healthy: but that in certain exudations, in peculiar states of the constitution, or where disintegrated matters existed which had undergone particular chemical changes, the *achorion* might be made to germinate, and produce a further growth of that identical fungi.

"Seeing, then, that the fungi are characterized throughout nature by feeding on effete or decayed matter; that the fungi supposed to be peculiar to certain diseases of the skin, are also found in many other diseases of the cutaneous surface, that competent observers have not been able to find them in these peculiar diseases; that sporules and filaments described as the cause of one definite disease, have been found in the products of another definite disease supposed to have a peculiar and distinct parasite of its own; and that attempts have been made in vain to implant these parasites in a healthy skin, one cannot but conclude that special parasites, peculiar to, and productive of, special diseases, do not exist. And in this opinion we are, at least, confirmed by the therapeutical fact, that the alleged parasitical affections are rarely, if ever, cured by destroying the parasite; and that they can be cured by the due administration of appropriate alteratives and tonics which are capable of correcting the blood dyscrasia, which, in fact, originates the disease.

"These views are countenanced by distinguished pathologists. Professor Bennett writes of *favus*: 'I believe that the pathology of *favus* is best understood by considering it essentially to be a form of abnormal nutrition, with exudation of a matter analogous to, if not identical with, that of tubercle, which constitutes a soil for the germination of cryptogamic plants, the presence of which is pathognomonic of the disease. Hence is explained the frequency of its occurrence in scrofulous persons, and among cachectic or ill-fed children; the impossibility of inoculating the disease in healthy tissues, or the necessity for there being scaly, pustular, or vesicular eruptions on the integuments pre-disposed to contagion.' And in some few experiments wherein it has been said that inoculation has succeeded in healthy persons, the following explanation may be offered: 'that the material in which the vegetation grows, may at the commencement, in a molecular exudation, be formed either primarily or secondarily. That is, there may be want of vital power from the first, as occurs in scrofulous cases; or there may have been production of cell forms, such as those of pus, or epidermis, which, when disintegrated and reduced to a molecular and granular material, secondarily constitute the necessary ground from which the parasite derives its nourishment, and in which it grows.'—(*Principles and Practice of Medicine*, page 807.)"

"It cannot be denied that the single fact of the universality of distribution of the fungi, is of itself a very strong argument in my favor, and leads to the belief that they are ever ready to fix themselves where disease has set up disorganization, or where, from other circumstances, the powers of life have become enfeebled. Should it not be as I have stated, then I maintain it still remains to be ascertained how great a share these microscopical parasitic organisms have in the causation of disease.

"But if we now turn to the etiology of cutaneous diseases, we find this simple fact—that when the spores of the fungi have become fixed, they take their food from the tissues (soil) which surround them, and perhaps extrinsically from the surrounding medium (the air); and the fitness of the soil is doubtless increased by humidity, which greatly assists in their germination, and is particularly favorable to all parasitic growths. Do we not find here also, an example of the law which must be obeyed, in the lowest forms of vegetable life as in the highest, whenever plants are to prosper, viz., 'the choice of the locality depends upon the peculiar properties of the soil sought for or avoided by the various species of plants?' The species to which our attention has been particularly directed, make choice of the animal cutaneous surfaces; and a knowledge of all the circumstances which favor their growth, may enable us to arrive at some general theory of the treatment to be adopted. It appears that we have chiefly to look to a change in the soil in which they grow, and to bring that to a state in which they cannot thrive, to insure the destruction of these parasites. What, may I ask, has been already done to effect so desirable an object?

"Mr. Hunt's experience—and this has been very large—proves that, as a rule, we must not rely upon local applications to effect the cure, or even arrest the disease, without at the same time endeavoring to produce a blood-change. To improve the general health is also of the very utmost importance, and this can only be done slowly and by the most judicious application of our remedies. Perhaps the best of all our therapeutic agents to employ in these diseases, one indeed based upon scientific data, both pathological and chemical, and for the safe and effective administration of which we are indebted to the researches of Mr. Hunt, is arsenic and its preparations. This subject appears to be a specific for most of the forms of skin disease of which I have been speaking, although it is not always essential; for some cases of *porripi*, *mentagra*, &c., even when infested with our parasites, have yielded to cod-liver oil, preparations of iron, with purgatives or alteratives, as the case may be, without any topical application whatsoever."

On the Upodermic treatment of Disease. By Mr. CHARLES HUNTER, late House-Surgeon to St. George's Hospital. ('Med. Times and Gazette', 5th March, 1859.)

Mr. Hunter's proposition is—That to produce an immediate or decided effect, no method is more effectual than the one originally recommended and long employed by Dr. Alexander Wood, of Edinburgh, in the treatment of neuralgia, viz., the subcutaneous, or, as Mr. Hunter calls it, the *upodermic method*. He maintains "that upodermic injections act more quickly than the same medicine when taken by the stomach, that they also act more powerfully and effectively; and that frequently they produce the greatest benefit where one equivalent dose administered by the stomach is entirely useless, and even prejudicial." And, certainly, the following experiments and cases would seem to warrant, in some degree, these conclusions:—

"*Experiment 1.*—I injected a few drops of water containing one-twelfth of a grain of the acetate of strychnia into the cellular tissue of a cat; in one minute it was tetanic, and in two minutes it was dead.

"*Experiment 2.*—I injected half a grain of morphia into the subcutaneous cellular tissue of a rabbit; it was completely comatose in five minutes, and remained so for hours.

"*Experiment 3.*—By the kind request of Dr. Page, I injected half a grain of the acetate of morphia into the arm of a girl aged sixteen, suffering from extreme chorea of all the muscles of the body; in two minutes all the muscles

had ceased their irregular movements, and in two minutes more the girl was asleep.

Experiment 4.—A man suffering from *tic-douloureux* was for some time subjected to the upodermic treatment; he almost constantly slept in from two to three minutes after the dose was injected at night.

"In several cats which I injected with morphia, the first symptoms showed themselves in a very few minutes.

"*Experiments 5 and 6.*—I injected three-quarters of a grain of the acetate of morphia into the cellular tissue of a man with *mania à potu*. He got to sleep almost directly, and slept for many hours. I gave the same man the same dose three-quarters of a grain of morphia in one ounce of water as a stomachic dose—it was one hour before sleep was produced, which, when obtained, lasted only about one hour and a half.

"*Experiments 7 and 8.*—I obtained a fine healthy rabbit, and, assisted by Mr. Venning, injected half a grain of morphia in about three drops of water, into the subcutaneous cellular tissue of the animal. It appeared slightly affected in two minutes, and fell comatose without a struggle in five. The pulse and respiration were very much lowered at the same time; narcotism lasted in this rabbit from six to seven hours; it appeared perfectly convalescent in nine hours.

"Some days after, Mr. Venning present, I again attempted to narcotize the rabbit by the same dose given by the stomach; a gum catheter was used to make certain of the fluid entering the stomach; for a long time we awaited the result, but no narcotism followed; the rabbit never even went to sleep, nor did it bring up the morphia.

"*Experiment 9.*—I injected three-quarters of a grain of morphia into the cellular tissue of a cat; it became preternaturally quiet directly after; in seven minutes it gave a convulsive start, its position previously having been fixed and uncomfortable; in thirteen minutes it uttered short, sharp cries; muscles of the body rigid; eighteen minutes, muscles of extremities became rigid also; the rigidity of the muscles became more marked, until at forty minutes it was in a general tetanic condition, the body fixed, and the legs extended. The cat, contrary to expectation, recovered; but for many hours suffered from the morphia, which appeared to throw the animal into a state of drunkenness, after the muscular rigidity had passed off. Two or three other cats, with a similar dose, I have thrown into a state of strong convulsion, and even of tetanic spasm, by the injected dose of morphia.

"*Experiment 10.*—With the aid of Mr. Keal, I administered the same dose of morphia to the same cat as in experiment 9—by the stomach—the gum catheter being passed down the œsophagus. The cat was quite natural for five minutes, then became quiet, and was sick in eight minutes, with five or six spasmodic retchings; it began the purring which morphia causes in all cats in fifteen minutes; at twenty minutes and thirty-five minutes, it had one leg convulsed, and in one and a half hour became very excitable and constantly on the move, as if tipsy: this lasted several hours; but it never had the general spasms or rigidity which the injected dose produced.

"*Experiment 11.*—With Mr. Ash, I gave the same cat the same dose by the stomach in the same quantity of water, but this time warm (instead of cold, as in experiment 10). Sickness was again the first well-marked symptom of the action of the morphia; it took place in ten minutes; the succeeding symptoms were as in last experiment, but milder.

"As the question might arise whether the sickness in these last two experiments might not have been due to the mechanical irritation of the stomach by the catheter, we made some experiments to set it at rest. We went through the process of injecting at different times cold and warm into the stomach of the same cat with the catheter; no sickness nor irritation of any kind ensued.

"*Experiment 12.*—In a patient with hemiparesis, no narcotic, except morphia, injected, will cause sleep. Opium and morphia have repeatedly been tried by the stomach; they never produce sleep, they always cause sickness."

II.

REPORT OF THE PROGRESS OF SURGERY.

Aneurism of the Right Femoral Artery cured by digital compression, with statistics of twenty-four other cases treated in the same manner. By Dr. Gross, Chief of the Surgical Clinic of the Jefferson Medical College, Philadelphia. ('N. Amer. Med. Chir. Rev.,' Jan. 1859.)

PRESSURE made by the fingers would appear to possess some advantages over that made by an apparatus. Thus, it is at once more speedy in its operation and less painful; it can be regulated more easily; in some instances it can be made to act upon the artery alone.

CASE.—A negress, æt. 32, with aneurism of the right femoral artery at the upper and inner portion of the thigh. After administering a grain of morphia, treatment was commenced on the 10th of June, 1858, at 10 A.M., by applying the thumb on the artery as it passes over the pubic bone. At the end of an hour the temperature of the limb was somewhat diminished. At one o'clock the patient complained of sickness at the stomach, which was relieved by half a grain of morphia, and in an hour and a half she fell asleep. During the afternoon she felt drowsy, and did not complain of pain.

11 P. M.—She has been complaining of pain for the last hour at the point of pressure, whenever the assistants relieved each other; in other words, when the pressure was relaxed. The knee is the seat of tingling pain, which extends to the toes, and the whole limb is painful when touched.

Friday, 10 A. M.—The tumor feels very solid and cannot be emptied of its contents. There is no bruit; but slight pulsation and thrill. The point of pressure has begun to be painful, and, to prevent any irritation of the skin, moistened flour was spread over it.

5½ P. M.—The tumor is very hard, but not diminished in size. No thrill or bruit, and but very feeble pulsation. The compressed spot is quite painful. Treatment discontinued after 31½ hours' employment. A grain of morphia was administered, and pounded ice in a bladder was applied, to be continued during the night.

Saturday, 10 A. M.—The patient slept well last night. The tumor is softer, but cannot be emptied. The pulsations are stronger, and there is some thrill. The compression was renewed at twenty minutes to eleven o'clock, and in an hour she complained of great pain in the knee, which soon extended to the toes. At half-past twelve the patient took one grain of morphia; the pain soon ceased, but occasionally returned. At half-past five half a grain of morphia was administered.

At 8 P. M. the point of pressure gave so much pain that a thin opium plaster was interposed between the skin and the finger, to avoid more irritation. This had a good effect in palliating the suffering.

10 P. M.—The patient complains of much pain throughout the whole extent of the tumor. The thrill has disappeared, and the pulsations are becoming feeble. The femoral artery is beating forcibly, and a collateral branch, about the size of the ulnar artery, can be felt beating at the inner and posterior portion of the tumor.

At 11 P. M. half a grain of morphia was administered; faintest perceptible pulsations.

At 12½ all pulsations had ceased. The femoral still pulsated pretty freely.

The compression was continued for another hour, at the end of which time the femoral was beating gently.

At 2½ o'clock, being satisfied that nothing more could be done, and that the circulation in the tumor was arrested, the patient was left, half a grain of morphia having been administered.

For a few days after this event the patient had slight tingling pains in the limb. Up to the time of her departure her appetite was good, and she slept well and was comfortable in every particular.

In about a week a gum ammoniac and mercurial plaster was placed over the tumor, and her diet was restricted. The tumor gradually diminished in volume, and she left for home on the 6th of July, not quite a month after the commencement of the treatment. At the time of her departure the affected limb had diminished to exactly the same size as the sound one. The femoral artery was pervious to within an inch above the tumor, and she could walk with comfort.

On the 13th of October, she came to the city to report herself. The tumor had diminished to the size of a walnut and was very solid. The locomotion was perfect, and her health was good in every respect.

The following are condensed reports of all the cases which have been treated by digital compression, either alone or in conjunction with apparatus:—

CASE 1.—In 1844, Mr. E. Greatrex was the first to apply digital compression, in a patient with popliteal aneurism of the right side. The compression was total and double; being made by an Italian tourniquet, alternately with the fingers of the patient. The compressor was placed over the artery below Poypart's ligament, and when the pain produced by it became unbearable, the patient relaxed the pressure for a few moments, at the same time applying his fingers very firmly to the artery just above the instrument, so as to allow of no blood passing through the tumor. The cure was effected in twenty-four hours. In this case, therefore, the fingers were but accessory to the instrument.

CASE 2.—In 1846, M. Vanzetti employed digital compression alone, in a case of popliteal aneurism, by means of assistants, at the hospital of Kharkoff, in Russia. This was maintained for two days, but was inefficient. The patient was cured by the ligature.

CASE 3.—In 1847, Mr. Tuffnell had, in a case of popliteal aneurism, been employing double and alternate pressure by apparatus. The upper pad giving rise to inflammation of the inguinal glands, the finger of the patient was substituted. This pressure was alternated with that of the instrument for twenty-four hours, when the inguinal pad was again used. The cure was effected in seven days.

CASE 4.—In the same year, Professor J. Knight, of New Haven, had a case of popliteal aneurism, in which apparatus could not be borne at all. He cured the case in forty hours, by digital compression alone, made by intelligent assistants, upon the femoral artery over the pubes.

CASE 5.—In 1848, Dr. W. H. Van Buren employed, for thirty-six hours, digital compression over the external iliac, in a case of true inguinal aneurism. Being unbearable, the artery was ligated and the patient cured.

CASE 6.—One month later, in the same year, Dr. George Fox, in a case of large inguinal aneurism, applied digital pressure to the external iliac for ninety-six hours. On account of the fatigue of the assistants, and being unable to procure more, the pressure was discontinued, the condition of the tumor being much improved. Mechanical compression was then employed for eight days, and the patient was finally cured by ligation of the external iliac.

CASE 7.—Professor Willard Parker, in the same year, in a case of diffuse aneurism of the femoral artery consecutive to ligation, employed digital pressure for seventy-two hours with apparent success; but the pulsation having returned, compression was made by a weight in the groin for seven days, and a cure was effected.

CASES 8, 9.—In 1850, Dr. J. R. Wood treated two cases of popliteal aneurism by digital pressure on the pubes, alternating with Depuytren's compressor about the middle of the thigh. In the first case the cure was effected in forty-eight hours, and in the second, in eleven hours and a half.

CASE 10.—In 1851, Mr. Norgate employed digital compression, in a case of popliteal aneurism, for twenty-four hours, having previously used bad apparatus for five days. This was inefficient, and the femoral was tied; the operation was followed by gangrene, necessitating amputation, but the patient recovered.

CASE 11.—In 1852, Mr. J. Monro had a case of popliteal aneurism, in which digital compression was kept up for three days by convalescent patients in the hospital. Mechanical compression was then substituted, and a cure resulted in sixteen days.

CASE 12.—In 1854, Mr. Wm. Jameson employed digital compression for a popliteal aneurism for four hours, when it was discontinued on account of the patient being irritable and rebellious. Mechanical compression was substituted, and a cure was produced in six days.

CASE 13.—In the same year, a patient, under the charge of Mr. Colles, cured himself, without assistance, of a diffuse popliteal aneurism, by intermittent digital compression, in seven days.

CASE 14.—During the same year, and under the same surgeon, a femoral aneurism was cured in about six days, by partial, irregular, alternating digital and mechanical compression.

CASE 15.—M. Vanzetti, in the same year, cured a popliteal aneurism, by digital compression, in forty-eight hours, various apparatus having been previously applied.

CASE 16.—In 1855, M. Nélaton, in a case of popliteal aneurism, tried mechanical pressure for sixteen days. This not succeeding, he substituted digital compression, which was maintained for ninety-four hours. The cure was not permanent. The limb was amputated, and the patient died of purulent infection.

CASE 17.—In the same year, the same surgeon employed digital compression continually and alternately with direct compression, with apparatus, in a case of arterio-venous aneurism at the bend of the elbow. In several days the cure was effected.

CASE 18.—In the same year, M. Vanzetti had an intelligent patient with a popliteal aneurism. Understanding the plan of treatment, which was deferred for twenty days, he himself, during this time, made pressure on the femoral artery, which seemed to have a slight influence upon the tumor. The treatment was confined to six intelligent assistants, and in four hours the patient was cured.

CASE 19.—In 1855, M. Michaux employed intermittent mechanical pressure, in a femoral aneurism, for four days. Digital compression was then substituted, and in twenty-four hours the cure was complete.

CASE 20.—The same surgeon, in the same year, in a case of popliteal aneurism, first employed a tourniquet and then substituted digital compression. A cure was effected in seven days, the compression having been several times withheld.

CASE 21.—In 1857, M. Gherini employed digital compression, primarily and alone, in a case of varicose aneurism at the elbow. A cure was effected in three hours and a half.

CASE 22.—In the same year, M. Michaux, in a case of popliteal aneurism, employed digital compression, primarily and alone, first partial and then total, and effected a cure in twenty-four hours.

For further convenience of reference these cases have been drawn up in the form of a table, from which it will be seen that fifteen were successful and eight unsuccessful. The number of the different varieties and the result are shown in the following table:—

Variety.	No. of cases.	Cure.	Failure.
Popliteal . . .	15	10	5
Femoral . . .	4	3	1
Inguinal . . .	2	—	2
Arterio-venous . .	2	2	—
	23	15	8

Cures.—In five cases the digital compression was employed *primarily* and alone. Nos. 13, 18, 21, 22, 23.

In four cases digital compression succeeded after apparatus had been abandoned. Nos. 4, 15, 19, 20.

Five times digital compression was alternated with pressure by apparatus. Nos. 1, 3, 8, 9, 14.

Once digital compression succeeded when combined and alternating with apparatus and direct compression of the tumor. No. 17.

Failures.—In six cases digital compression was tried before any other means. Nos. 2, 5, 6, 7, 11, 12.

In two cases digital compression had been employed after apparatus had been abandoned. Nos. 10, 16.

"After examining these unsuccessful cases, the question naturally arises, were they all good tests of this mode of treatment, and would it not have been possible to have cured several of them had the treatment been continued for a longer time?

"Of these eight cases, it is probable that in No. 7 the cure would have been complete, had the compression been kept up several hours longer; in Case 11, the pressure must necessarily have been imperfect, on account of its having been applied by convalescent patients in the wards of a hospital. In case 12, it was abandoned after four hours, because the patient was rebellious. In Cases 5 and 6, the pressure was in the one unbearable, and in the other no more assistants could be procured; in both, moreover, the aneurism was inguinal, where, on account of its unfavorable situation, it is exceedingly difficult to maintain pressure, and consequently a favorable result could scarcely be expected. Cases 2, 10, and 16, are the only ones which we would regard as perfect failures. In examining the ultimate results of these unsuccessful cases, we find that in four the artery was subsequently ligated, and all but one were successful, Nos. 2, 5, 6, 10; two were amputated, Nos. 10, 16; and one patient died of purulent infection. In three cases, subsequent mechanical compression resulted in a cure, Nos. 7, 11, 12. In cases 7 and 12 the tumor was so modified as to render a cure by apparatus effectual. In Case 11, digital compression rendered apparatus bearable.

"The length of time required for the cure of fourteen of these successful cases—No. 17 has to be rejected, as the period is so indefinite—averaged two days and two-thirds. When the compression was primary and employed alone, the average was two days and thirty minutes; when double and alternate, three days and seven hours; and when employed after apparatus had been abandoned, the mean duration was two days and twenty-two hours. Let us compare these results with those of aneurism treated by mechanical compression alone. Thus, Mr. Hutchinson found in the London hospitals that, of twenty six cases of femoral and popliteal aneurism cured by this method, the average duration was nineteen days, while in the Dublin cases the mean duration of treatment was twenty-five days.* M. Broca has found that in ninety-nine cases the length of time required for a cure was a little less than fifteen days.† At the present time we may therefore state that digital compression alone has effected cures in the shortest time. Next in order comes alternate digital and mechanical compression; and lastly, mechanical compression alone requires the longest time for a cure, although the duration of this plan is far less than that of the treatment by the ligature. The reason why mechanical compression has not succeeded in a shorter space of time, is on account of its bad application in most cases, and when this point has been properly attended to, there can be but little doubt that a cure will result in half the time it will by the ligature.

"A striking point in these twelve cures is, that five were effected by pressure with the finger alternating with the use of the apparatus. In two of these cases the pressure was regulated and kept up by the patients, Nos. 1, 3. In the remaining three, Nos. 8, 9, 14, the compression was made by assistants.

* See Erichsen's 'Surgery,' second edition, pp. 522-23; London, 1857.

† 'Broca des Aneurysmes,' etc., p. 844; Paris, 1856.

As this plan is so simple, has been attended with the best results, affords such relief to the patient and operator, and has always effected a cure whenever employed, it should be preferred to all other methods.

"The case of Mr. Colles, No. 13, is interesting from the fact that the patient cured himself in seven days, by irregular intermittent digital compression, the treatment being carried on without the knowledge of the surgeon.

"In M. Vanzetti's case, No. 18, the patient had kept up the pressure himself for twenty days previous to the interference of the surgeon, so modifying the tumor as to render the cure perfect in four hours.

"Thus it will be seen that in a little more than one-fourth of these cases the patients had been, in a greater or less degree, instrumental in the cure, leaving the surgeon but little to do.

"Another interesting fact is, as M. Broca observes, 'that digital compression is an American procedure, and the principal merit thereof belongs, undoubtedly, to Professor Knight,' who was the first to cure a case by this method, unassisted by apparatus. Besides his case, six others have been operated on in this country, making seven of the twenty-three cases; four of which were successful."

A Guide to the Practical Study of Diseases of the Eye.

By JAMES DIXON. (12mo., Churchill, 1859.)

Mr. Dixon's little work is one of the best manuals that has yet appeared upon the extensive and important subject of which it treats. Without pretending to emulate the extent or depth of Dr. Mackenzie's 'Treatise,' or the systematic character of Wharton Jones's 'Principles of Ophthalmic Medicine and Surgery,' it yet presents in an agreeable and intelligible form those varieties of diseases of the eye which constantly come under the notice of every surgeon, whether engaged in hospital or private practice; the description being neither cramped with hard and technical phrases nor drawn out to an inordinate length, and the methods of treatment given being those for the most part which have been found serviceable by the author himself. Sometimes, indeed, we are disposed to think Mr. Dixon's style is too sketchy, as in the account of sclerotic inflammation; but, on the other hand, the several affections of the iris are remarkably fully and clearly described. In the 'Treatment of Syphilitic Iritis,' he says, "Invaluable, indispensable as atropine is in our examination of many morbid states of the eye, I do not regard it as of any service in iritis, for an inflamed iris loses its power of motion. Atropine must, therefore, be useless during the active stage of inflammation. At a later period, when the iris is beginning to recover its motory function, it may, I think, even do harm, and in the following way: when fibrin is poured out behind the iris (which no doubt happens in all cases of acute inflammation) the pigment cells of the uvea become for a time firmly united to the capsule of the lens; and if when the iris is regaining its motory function a forced dilatation of the pupil be effected by the influence of atropine, some of the pigment may be detached from the posterior surface of the iris, and left adhering to the capsule, forming those brown patches so familiar to us in patients who have suffered from iritis. Only get rid of the fibrin which is gluing the pigment cells to the capsule of the lens, and the iris is at once effectually liberated."

In giving an account of glaucoma, after an excellent description of both the objective and subjective symptoms of the disease, Mr. Dixon enters into a discussion of the surgical method of treatment which has been so recently introduced and so extensively adopted by all who have devoted themselves to the study of the eye, and which, as it affords a good example of the general style of the work, we shall transcribe. "The treatment of glaucoma by 'Iridectomy' was published by Grafe in the 'German Ophthalmic Journal,' of which he is co-editor, and was also brought before the Ophthalmological Congress which met at Brussels in 1857. An incision was to be made through the cornea, as close as possible to the sclerotic; a considerable portion of iris to be grasped by the forceps, drawn out, and cut off. When the nature of the

operation came to be explained, one could not fail to be struck with the apparent absence of all causal connection between the morbid changes of glaucoma and the means proposed for arresting them. How was general hyperæmia of an eyeball and the consequent changes of its tissues to be overcome by cutting out a piece of the iris? No satisfactory rationale of the operation was offered. We were told that 'intra-ocular pressure' was the cause of all the phenomena of glaucoma, without any very clear account being given as to what was pressed or what effected the pressure, and we were assured that the removal of a piece of iris, by taking off the pressure, would bring about restoration of sight. Now, it was obvious, that if the vessels of the eyeball were overfilled with blood, pressure must be exerted upon all the other tissues, and that the removal of a portion of the iris would, *pro tanto*, lessen the total amount of solid matter contained within the fibrous case of the organ. But unless the original cause of the hyperæmia were to cease, would not distension of the bloodvessels still go on, and soon reproduce the same amount of 'intra-ocular pressure' as formerly existed.

"Then with regard to the forms of glaucoma to which the proposed 'new operation' was applicable; clearly in old cases, where acous effusion had already taken place to such an extent as to separate the retina and choroid from each other, or when in addition to this effusion the lens had become opaque and adherent to the iris, no removal of 'intra-ocular pressure' could be of service. There remained, then, as subjects for the new operation, either those chronic cases in which the lens had retained its transparency and no general separation of the retina and choroid had taken place, or recent acute cases. The facility with which the operation of 'iridectomy,' as it has been called, can be performed, has led to its being practised in an immense number of cases, and were we contented with the array of so-called cures which have resulted, we should, indeed, believe that glaucoma, hitherto so hopeless a disease, had been brought as much under control as cataract itself. But a careful criticism will convince us that many of the 'cases of acute glaucoma cured by operation' were simply cases of acute inflammation of the sclerotic, implicating to a slight extent the iris and cornea, and attended with severe neuralgia and impairment of vision—cases which would have yielded to judicious treatment if no *iridectomy* had been performed. * * * For myself, I may state that although I could not recognize as sound the theory upon which the operation was brought forward as a cure for glaucoma, I tried it in a series of carefully selected and well-marked cases of the following forms of disease: 'amaurosis with excavated optic nerve,' as Gräfe has termed a peculiar morbid condition; chronic glaucoma, when the lens had not yet lost its transparency; and in cases of acute glaucoma, characterized by sudden impairment of sight, rapidly followed by inflammation of the eyeball, dilated and fixed pupil, severe neuralgia, and total loss of vision.

"In neither of the first two classes did I find, nor had I expected to find, any improvement to result, nor in the third class was sight restored, but the inflammation seemed to be arrested, and the neuralgia was either very much lessened or it wholly ceased. I cannot, however, attribute this result to the removal of a portion of iris, but mainly to the evacuation of the aqueous humor through the large corneal wound."

Perhaps the best written chapter in the book is that upon cataract, and the more so because the reader is not wearied with a detail of many methods, but the plan now usually adopted by all English practitioners is clearly and fully given, with such additional comments as may serve to elucidate particular points. In speaking of the operation by solution or absorption, he says, it may perhaps be considered as the most beautiful and perfect in the whole practice of surgery; and after describing the steps of the operation, he adds: "It is a besetting error of inexperienced operators to suppose that a cure will be hastened in proportion to the amount of lens they can break up at one time; but except with young subjects the very reverse is the case. The great rule to be observed is—not to oppress the eye with more broken-up tissue than the absorbing power of the organ is capable of removing rapidly, otherwise the little fragments act as foreign bodies; inflammation is set up, and all absorption is

at once checked; the sclerotic and conjunctiva become injected; there is pain in and around the eye, with weeping, and considerable intolerance of light; the aqueous humor is turbid and the iris discolored; the cornea appears hazy, and its surface dull and steamy.

"In such a case the eye may be lost by chronic inflammation unless it be forthwith relieved from the broken-up lens which is oppressing it. This may be done by making an incision near the margin of the cornea and introducing a small scoop or spatula, so as to allow the softened portions of lens to escape with the aqueous humor. An operation of this kind, if resorted to in time, may restore the whole eye to a healthy condition, the inflammatory symptoms rapidly subsiding, and the iris and cornea resuming their natural aspect."

In regard to the position of the patient in the operation for cataract by extraction, Mr. Dixon recommends the recumbent position, with the head slightly raised, in opposition to the continental method of operating with the patient seated, "for what anatomist about to commence a minute dissection would allow the preparation to be held in the hands of an assistant instead of placing it on a table?" In the performance of this operation it sometimes happens that a fold of the iris is cut through in consequence of the aqueous humor prematurely escaping. When this occurs Mr. Dixon observes that the band of iris between the two apertures must be divided so as to lay them into one, before proceeding to lacerate the capsule and attempt the extraction of the lens.

He dwells strongly on the necessity of performing the corneal section with slowness and care, avoiding as far as possible the too sudden escape of the contents of the globe, and he particularly indicates that the line of incision should be "at such a distance from the sclerotic as shall insure both edges of the wound being of genuine corneal tissue; for wounds of the true cornea, provided their edges are in accurate opposition, have a peculiar readiness for uniting, which is not equally shared by that extreme marginal portion which blends with the sclerotic."

The capsule should be sufficiently lacerated to allow the lens easily to escape, then gentle and properly applied pressure should be made upon the globe. The after treatment is excellently described.

In conclusion, we can cordially recommend Mr. Dixon's work to those who wish to obtain a good general knowledge of the principles of ophthalmic medicine and surgery, and who do not possess the time or the inclination to study the ponderous volumes that have been written on this most extensive subject.

On Wounds and Injuries of the Eye.

By WILLIAM WHITE COOPER. (8vo, Churchill, pp. 330. 1859.)

Amongst the many treatises which have been devoted to the consideration of the eye and its diseases, it is somewhat surprising that no English work has yet appeared which gives in full detail the various injuries to which it is liable. We have special treatises on iritis, on operations, on the ophthalmoscopic appearances of the eye, but not one upon wounds of this organ, and yet these are exceedingly common, are very dangerous to sight, and require more than ordinary acumen and circumspection in their treatment. Mr. Cooper's work is designed to fill this hiatus, and in the excellent arrangement of his subject, in the numerous instances which he has adduced of almost every variety of injury, most of which appear to have occurred in his own practice, and in the judicious methods of treatment which he suggests, he appears to have succeeded very perfectly. We recommend his well-written and beautifully illustrated work, not only to those who are especially engaged in the study of ophthalmic diseases, but to the profession at large.

The first chapter is devoted to a consideration of the results and treatment of foreign bodies in the eye. A singular list of the materials which may be found there is given, amongst which the following are enumerated: seed husks, grit, insects, thorns, and splinters of wood, together with many substances which are thrown off in the practical operations of many trades, as in those of knife, fork, and razor-grinders, blacksmiths, &c.

In all instances the examination of the eye should be early, careful, and com-

plete, and the removal of the foreign body should be conducted as delicately and with as little injury to the adjoining parts as possible. The patient should be seated on a low chair, in a good but not too strong light, with the sound eye covered; then, the lids being raised, the surface of the cornea and sclerotic should be closely examined; if nothing be visible, the eyelids should be everted, when the foreign body will generally be found upon its inner surface. A sharp or a round-pointed needle may then be used for the purpose of detaching it. Occasionally a pair of forceps may be used, and the piece of conjunctiva containing the foreign body may be snipped off.

A caution is given against mistaking the stain of a fragment of steel or iron for the particle itself, a mistake which is often productive of great suffering to the patient, from ill-advised efforts upon the part of the surgeon to remove it. When the particles remain long impacted, serious effects may ensue. A very instructive case is related, which, as it gives a good idea of the results and appropriate treatment, we shall transcribe: "A pallid, sickly-looking shoemaker was struck by a particle of iron in the right eye whilst looking on at a blacksmith hammering at an anvil. Six weeks afterwards the condition of the eye was formidable. The palpebre much swollen, the conjunctiva, sclerotic, and cornea, acutely inflamed. The foreign body lay imbedded near the centre of the cornea, surrounded by infiltrated pus, and the anterior chamber was half filled with pus. Neither iris nor pupil could be discerned. There were great pain and debility, with weak pulse and foul tongue. Mr. Cooper extracted the particle with a needle, and ordered two leeches to be applied, with a warm poultice and frequent fomentations. Three grains of calomel immediately, an aperient draught after six hours, and six grains of Dover's powder every night. Seven days after, the pus had entirely disappeared, and the iris and pupil had become distinctly visible. What congestion remained was of an asthenic character. He was ordered five grains of cinchona bark and five grains of bicarbonate of soda three times a day, with nutritious diet; the bowels to be regulated with sulphate of soda, and a blister to be placed behind the right ear. Seven days after he was quite well, with merely a slight film on the cornea."

The next chapter is occupied with the subject of foreign bodies in the eyeball, and the method of treatment in such cases. The injuries produced by fragments of percussion caps, especially those of foreign manufacture and those which are used at fairs in shooting for nuts, and which are not split, are of this nature. The apparent wound in the cornea is usually clean and small, and the foreign body may be either located in the anterior chamber, imbedded in the iris, or lodged in the substance of the lens, whose peculiar and increasing density usually arrests its further progress. Smooth metallic substances may remain in any of these positions without being productive of material distress or inconvenience to the patient for considerable periods. Far more frequently they produce more or less inflammation of the internal structures of the eye, and if lodged in the lens commonly produce cataract or opacity of that body. In other cases, besides blindness, severe neuralgia and sympathetic irritation and inflammation of the sound eye often ensue.

In some instances, where the fragment has penetrated deeply, it is impossible to discern it by mere inspection, and several instances are given where large portions of metal had been removed from eyes in which no foreign body was known or supposed to be present. In such instances the ophthalmoscope has been of great service.

Mr. Cooper considers that in all instances the patient should be placed under the influence of chloroform, and the foreign body removed with the least possible delay. At the same time he acknowledges that it is often a matter of extreme difficulty, requiring the utmost skill and patience on the part of the surgeon, especially where it is impacted in the substance of the iris. Where the lens is penetrated, it should be removed entire with the foreign body, as it is almost certain to become opaque.

A long section is taken up with gunshot wounds of the eye, and many illustrative cases are given in point. A shot striking the eye may either cause simple bruising and concussion, or it may glance off, cutting a groove without penetrating, it may pierce through the tunics and lodge in the globe;

or, lastly, it may traverse the eye and bury itself in the orbit. In all cases the first thing to be done is to carefully cleanse the eye, if there be either blood or dirt, and then a full and satisfactory examination should be made to ascertain the nature and extent of the injury. In determining the question as to whether or not a shot has pierced the eye, the chief points to be considered are: the weight of the shot, the distance from which it was discharged, and the position of the eye, with the direction from whence the shot came. A guarded prognosis should always be given, even where there has apparently only been a slight graze. If a shot has passed through the cornea, there will be a visible breach of surface in the cornea, and the iris will be in contact with it; this obliteration of the anterior chamber is positive proof of that cavity having been opened. If the shot has wounded the iris, there will probably be some blood in the anterior chamber. If the lens be lacerated, in a few hours it will in all probability be opaque. When a shot lodges in the posterior portion of the eye, it gives rise to a series of changes, the result of long-continued inflammation. The iris changes in color, the globe becomes atrophied and soft, and the sclerotic puckered, the puckers running from the cicatrix. As regards treatment, the strictest antiphlogistic measures should be enforced. In the first instance cold-water dressings should be applied; if suppuration take place, fomentations must be substituted; and if there is much discharge, the dressings should be frequently changed.

The chapters upon incised and punctured wounds of the eye, with their usual consequences—prolapse of the iris, opacity of the lens, atrophy of the globe, staphyloma, &c., are excellently written. The treatment, in particular, is very fully given, and many valuable suggestions are advanced, great stress being most properly laid upon a due attention to the constitutional state of the patient.

We regret that we have not space to follow Mr. Cooper through the interesting subjects of dislocation of the lens—the removal of which he uniformly recommends—and of intra-ocular hemorrhage, except to mention that effusion of blood behind the lens is much more dangerous to sight than effusion into the anterior chamber, and also the great value of the ophthalmoscope in the diagnosis of these injuries.

The section on burns and chemical injuries contains by far the best description we have yet seen of these most formidable and destructive accidents; and both here and in the rest of the work we have particularly noticed the absence of hard and technical terms, the whole being written in a very agreeable, easy, and intelligible style.

In the last chapter Mr. Cooper enters into a consideration of sympathetic affections of the eyes, a subject which, since the general adoption of Prichard's plan of extirpation of the affected eye as soon as there is clear evidence of the sound eye being sympathetically affected, has assumed considerable importance. "The ordinary characters of sympathetic inflammation are, dimness of sight, passing into blindness; at first the appearances are by no means indicative of the formidable nature of the disease; there is sclerotic redness round the cornea, effusion of lymph upon the capsule of the lens, and gradual discoloration and irregularity of the iris, which becomes bound down to the capsule. These effusions taking place in the posterior chamber, bulges the iris forwards, the vitreous humor becomes fluid, the eye loses its consistence, the retina its sensibility, until at length atrophy and shrinking of the globe, with total blindness, is the sad result."

"Wounds from foreign bodies most commonly give rise to this affection, and it is especially observed in those who make use of their eyes at too early a period after accidents."

"Ordinary treatment is here useless. Mercurials, iodide of potassium and bloodletting or blister, are of little service. Occasionally a seton in the temple has been found useful, but upon the whole, extirpation of the affected eye is in general absolutely requisite."

Practical Observations on the Radical Cure of Inguinal Hernia. By C. HOLTHOUSE, F. R. C. S., Surgeon to the Westminster Hospital. (12mo, Churchill, 1858.)

Mr. Holthouse, in giving a *résumé* of the various operations that have been devised for the radical cure of inguinal hernia, gives the following classification: 1st. Operations for removing or obliterating the hernial sac by means of the knife. 2d. Operations for obliterating the hernial sac by exciting inflammation and adhesion of its contiguous surfaces. 3d. Operations for closing the hernial passages by a plug of integument. 4th. Operations for blocking up and closing the external abdominal ring. He then gives in full detail the particulars of Langenbeck's, Gerdy's, Wutzer's, and Mr. Wood's operations, with the mode in which a cure is effected, and statistical results in each case. Wood's operation, of which Mr. Holthouse speaks in terms of commendation, "consists in a kind of subcutaneous separation of the superficial fascia from the cord, pushing the former into the inguinal canal, drawing together by ligatures the two pillars of the external abdominal ring, and applying pressure over the opening." As showing the frequency with which cases of hernia come before the surgeon, and the perfect cure that may in many instances be effected, this short and clearly-written pamphlet should be in the hands of every member of the profession.

Practical Observations on the Operations for Strangulated Hernia. By J. H. JAMES, F. R. C. S., &c., Consulting-Surgeon to the Devon and Exeter Hospital. (Churchill, pamphlet, 1859.)

It is much to be regretted that those surgeons who have long held important posts in our large hospitals do not, at the close of their career, give the results of their experience in the form of tabulated extracts from their case-books, upon those subjects to which they have specially directed their attention, or on which there is much difference of opinion. Such tables would possess a double value, both as proceeding from unquestionably authentic sources, and also as representing the results of particular lines of treatment, on an average series of cases, in the hands of men for the most part thoroughly acquainted with every department of surgery.

Mr. James's work is of this nature, and it will be read both with profit and pleasure. We trust that it is only an instalment, and that he will not think it too great a labor to place before the profession, in a similar form, the results of his matured experience upon other matters.

Mr. James has operated on 36 cases. Of these 22 were femoral, 14 inguinal and scrotal; 24 were in hospital, 12 in private practice. Of the latter 6 died, of the former 8. Alluding to the occasional difficulty of diagnosis in females, between inguinal and femoral hernia, he points out that the cause of the obscurity arises from the fact, that the tumor mounts nearly to the spine of the ilium: when this is the case it may safely be pronounced to be inguinal. He considers that tobacco may sometimes act advantageously when chloroform has failed, not only from its power of unloading the capillaries, but also from the remarkable influence on the peristaltic motion of the lower bowels which tobacco possesses.

With only one exception, Mr. James has always followed the old plan of opening the sac, and he thinks that this mode of practice, in both kinds of hernia, will continue to be practiced, at least in the majority of instances.

In all the cases of femoral hernia, the stricture corresponded with the edge of Gimbernat's ligament, and was relieved by its division. "Having inserted the very point of my finger, I pass a narrow, strong, probe-pointed bistoury, guarded very nearly to the end, taking care that its edge is sharp. Passing this with its flat side, as soon as I have got its extremity into the edge of the stricture, I turn it, press it back into the pulp of my finger, press the point of that, so armed, against the edge of the stricture, carefully avoiding any sawing motion, but cut, as it were, with the finger itself; this safely divides a small

notch, and allows the finger to be passed sufficiently far to protect any subsequent division which may be required."

As regards after-treatment, he thinks it rarely desirable to give aperients by the mouth, but that the action of the bowels should be solicited by enemata. When the action is antiperistaltic, opium becomes the best purgative.

Peritonitis is the usual cause of death; it is for the most part of a low type, and is often maintained by the continuance of an internal strangulation, either complete or incomplete—it may be, from the effects of an unrelieved stricture in the sac.

There is great "frequency, severity, and fatal tendency to erysipelas and gangrene, especially of the scrotum, after the operation for hernia."

A very excellent *résumé* of his own operations are given, and Mr. James concludes with an estimate of the value of Petit's operation, to which, upon the whole, he appears to hold an adverse opinion, except in certain very favorable cases.

The Pathology and Treatment of Stricture of the Urethra. By JOHN HARRISON, Esq., F. R. C. S. (8vo, London, J. Churchill, pp. 110, 1858.)

During the last few years several very complete works on stricture have issued from the English medical press, and from these the advanced student may obtain an almost exhaustive account of the nature and treatment of this disease. The little volume of Mr. Harrison does not pretend to enter into a complete exposition of all the minute details which are connected with stricture, but it is the work of a good practical surgeon, in which the author states what he has found to be the most important facts in a disease to which he has devoted much attention. As such it will always possess value, even to those who have been long engaged in the pursuit of their profession; but since, in the study of every subject, it is necessary that the chief outlines and fundamental propositions should first be known, from which the minor details may be readily filled in, so we think that Mr. Harrison's little book will prove of most value to those who, not desiring to make a specialty of this subject, are yet anxious to know the opinions and practice of a sound surgeon upon the chief points connected with it. To such we can strongly recommend this work.

Lectures on Syphilis. By VICTOR DE MERIC, Esq., Surgeon to the Royal Free Hospital, and to the German Hospital, Dalston. (Pamphlet. London: John Churchill, October, 1858.)

The first of these lectures treats of the unity or duality of the virus of syphilis; the second, of some peculiarities of certain constitutional symptoms of syphilis, and the non-contagious nature of the whole series; and the third, of hereditary syphilis.

In the first lecture, the author urges the importance of the study of syphilis, and endeavors to remove some of the prejudices against specialism, by showing that a thoroughly educated specialist is a very useful member of the profession. After mentioning the now existing differences of opinion on syphilis, Mr. De Meric, in alluding to the origin of the disease, suggests that Ricord might be right in thinking that glanders were no stranger to it. As to the word *syphilis*, it should, according to the author, be restricted to the general effects of the disease on the organism; and he adds that the existence of a virus in this complaint is as certain as in scarlet fever, influenza, rubella, and typhus.

The author holds that the syphilitic virus can but once be implanted in the economy, and that the receptivity ceases after a first injection. The essence of the poison is unknown, and no clue has as yet been found by the microscopical examinations of the virulent pus, conducted by Mr. Jabez Hogg, at the author's request. Ricord admitted, until lately, but one virus, supposed to give rise to soft and hard chancres, the first being exclusively a local disease, the second giving rise to systemic syphilis. Influenced by the researches of his pupil, M. Bassoreau, who considers that each of these chancres owes its origin to a distinct virus, Ricord has encouraged the investigations of another of his

pupils, M. Fournier, and has almost been convinced of the truth of M. Basse-reau's doctrine. The mode of investigation consisted in tracing the origin of contamination in a certain number of cases, which investigation brought to light the fact that one kind of chancre invariably generates its like.

Sketches of the doctrines of Hunter, Abernethy, Carmichael, and Wallace, as bearing on the plurality of the virus, precede the account of the rise and progress of duality propounded by Bassereau, long mentioned as probably true by Ricord, but not as yet freely and unreservedly admitted by the latter. The author has "endeavored to add a few confrontations from his own practice," and concludes that "it is plain, that if we admit the doctrine of duality, we may do so without infringing upon the unicity of the syphilitic poison; because, from all we have said, it would appear that there seems to be a duality of chancreous poison, but that there is but one actually syphilitic virus capable of infecting the economy."

In the second lecture the author endeavors to ascertain the average of the time which separates the primary symptom from the eruption, taking as a basis the cases which have come under his care, and where no treatment had been used. The result of the inquiry is as follows: "We may, regardless of the kind of eruption, reckon a mean of six weeks, where no treatment has been resorted to." A simplified classification of syphilitic eruptions is then attempted, grounded on the tendency or the absence of tendency to ulceration.

First division.

Non-ulcerative or deciduous Erythema and papules.

Second division.

Ulcerative or secreting Vesicles, pustules, and tubercles.

The author adds: "I must confess my partiality for the practical lucidity which is afforded by this division, because ulceration denotes a considerable activity in the poison, and a want of resistance in the patient; hence, when we see the possibility of the formation of ulcers by the appearance of vesicles, pustules, or tubercles, we have made a discovery which is of paramount importance in the treatment."

The diagnostic value of the copper color, and the absence of pruritus in syphilitic eruptions, is then shown to be unimportant; and condylomata (which Mr. De M. calls muco-cutaneous papules) are proved to be secondary and not primary symptoms, as maintained by some surgeons.

The next subject of which our author treats is the distinction between secondary and tertiary ulcers—a distinction of great interest, as the treatment should vary in the two series of ulcers.

The last topic of this lecture is one which has given rise to very animated discussions, viz., the question of contagion respecting secondary symptoms. The author belongs to Ricord's school, and thinks them not contagious; but we shall see how Mr. De Meric will view the subject in his further publications, as M. Ricord declared, on the 31st May last, at a meeting of the Academy of Medicine of Paris, that recent experiments have led him to modify his opinion.

The third lecture is taken up by researches of the author on two points of hereditary syphilis. These are: 1st, The limitation of time as to the appearance of the symptoms; and 2d, the action of the infected fetus upon the healthy mother. He finds, from his cases, that in only two instances, out of a great many, the infected child showed symptoms at birth. As to the limitation of time it is as follows: "I was able to ascertain in twenty-eight cases, at what period after birth the symptoms had appeared; and I find, irrespective of the kind of symptoms, that they were noticed a few hours after birth in two cases, a few days after birth in four cases, from ten days to three weeks after birth in five cases, and from six weeks to thirteen weeks after birth in ten cases. We have thus twenty-one cases in which the symptoms appeared before the child was thirteen weeks old. The remaining seven cases are examples of the appearance of syphilitic symptoms at periods after birth ranging from ten months to fifteen years. The seven cases run thus: in the first, the symp-

toms appeared thirteen weeks after birth; in the second, fourteen months; in the third, twenty-one months; in the fourth, two years and three months; in the fifth, eight years; in the sixth, twelve years; and in the seventh, fifteen years.

This lecture closes with the relation of cases which would tend to show that a healthy mother may escape being contaminated by an infected fetus, the author saying—"I have carefully computed the forty-four cases to which I have before alluded, and I find that in twenty-one of them, both parents were diseased before the birth of the child. These cases, therefore, do not bear upon the present question. But, out of the twenty-three remaining cases, I perceive that in thirteen the mothers who had given birth to syphilitic children remained in perfect health." These cases, which would tend to invalidate the doctrines of Mr. Hutchinson, M. Devay, and M. Ricord, are then given in detail.

Lectures on Chancre. By M. RICORD. Translated by C. F. MAUNDER, Esq., Demonstrator of Anatomy in Guy's Hospital. (8vo, Churchill, 1859.)

Few subjects have raised a greater number of disputed points within the last few years than syphilis. The French, by reason of their stringent police regulations, and the large hospitals devoted to this disease, present singular advantages for the study of its protean forms; and it is accordingly not remarkable that numerous essays and treatises have appeared, in which it has received the fullest attention. Amongst the writers on this subject M. Ricord stands pre-eminent; and Mr. Maunder has done a great service in translating, and in translating so well, the work of this distinguished surgeon.

M. Ricord clearly holds the doctrine of the duality of the chancreous poison: one producing the simple, non-indurated, cleanly cut chancre; the other producing the indurated chancre—the latter capable of infecting the constitution, the former incapable. He recognizes two forms of bubo that may accompany the simple chancre: the one consisting of a simple inflamed gland, or sympathetic bubo, susceptible of resolution, or suppurating without virulent specificity, and analogous to those which might follow any ordinary wound; the other being a specific bubo, a true glandular chancre, *suppurating curily*, secreting an *inoculable pus*, and converting the wound following the opening of the purulent focus into a chancre.

In the treatment of simple chancre, M. Ricord recommends its early and complete destruction by means of the application of a paste made of sulphuric acid and vegetable charcoal, and the administration internally of the pota-sio-tartrate of iron, which may also be applied as a lotion.

Mercury should never be employed.

On the other hand, the indurated or Hunterian chancre, with its well-known characters, is uniformly accompanied—usually before the expiration of a fortnight—by hard, painless, indolent swellings in the groin, consisting of enlarged glands, which show no tendency to inflammation or suppuration, unless under the influence of extraneous exciting causes—the pus in such instances being simple, ordinary matter, without any virulent properties. "The drama of syphilis," that is of the constitutional affection which succeeds indurated chancre, may be said to be "divided into three acts or periods: 1st period. Primitive affection, the chancre, the inevitable source of acquired syphilis; the chancre with its faithful companion the bubo. 2d period. Secondary affection, opening the scene to the constitutional symptoms of syphilis, i. e., succeeding the chancre within the *first months* of its existence; affection of the superficial tissues"—general lassitude, neuralgic and rheumatic pains, cervical adenopathy, alopecia, cutaneous eruptions of exanthematous kind, &c. "3d period. Tertiary affections, only manifesting themselves at a distant epoch from the original affection, rarely sooner than six months; affections of the deep tissues."

The primitive affection is the only one which is incontestably contagious, and since indurated chancre creates a diathesis, it is necessarily subject to the laws of similar affections; it never relapses, and syphilitic diathesis is no more reproduced than any other kind of diathesis. It is clearly hereditary, but the blood of the affected individual, which is evidently the vehicle of poison, since it radiates it through his system, is not contagious, and cannot communicate

the disease to a healthy subject, nor can a child receive the poison of syphilis from a nurse through the medium of the milk. A child infected after birth is infected by a chancre precisely in the same manner as an adult.

When the pus of an indurated chancre acts on an organism previously infected, it produces, not a hard chancre, but a chancre with a soft base, similar in appearance and form to the simple chancre; and from recent investigation it seems probable that the virus of this apparently simple chancre may, when affecting a perfectly healthy person, reproduce the hard chancre, but is also sometimes transmitted as a soft chancre. In regard to the treatment of indurated chancre, the great fact to be remembered is, that its destruction by caustic, excision or otherwise, before the fourth day, that is, before its base becomes indurated, presents the manifestation of syphilis. When induration is fairly present, cauterization is useless—the syphilitic diathesis is acquired. For the treatment of that diathesis mercury is the chief remedy; but in its administration the diagnosis should first be surely made, and it should be remembered that the curative action of mercury is generally *suspended* from the moment that the morbid symptoms which especially belong to this agent begin to be produced. In the treatment of the secondary affections, iodide of potassium is absolutely requisite; but M. Ricord gives it in minimum doses, three or four scruples a day to begin with, subsequently increasing it to five, six, or eight scruples, and Mr. Maunder mentions yet larger doses having been given experimentally.

On Voltaic Narcotism for the Production of Local Anæsthesia for Surgical Operations. By Dr. BENJAMIN W. RICHARDSON, Physician to the Royal Infirmary for Diseases of the Chest. ('Medical Times and Gazette,' February 12, 1859.)

Some six months ago Dr. Richardson published, in the 'Medical Times and Gazette,' a paper on electricity and local anæsthesia. In that paper, which has since been often referred to in the late controversies on so-called "electrical anæsthesia," he tried to prove by experiment that the electric current in no one of its applications could be made to produce insensibility to pain. He explained that the intermittent current, inasmuch as it produces counter shock, might, in sudden operations, such as tooth-extraction, remove the idea of the consciousness of pain caused by the operation, by a diversion of sensation. His experiments up to that time were conclusive in so far as the intermittent current was concerned, and in so far as related to the effects of powerful electrical discharges. They required to be strengthened, however, in respect to the influence of the continuous current—a requirement which he took ready pains to fill up; the result being, that the continuous current, however used, is incapable of producing any degree of anæsthesia in such way as to be applicable as an adjunct to surgical art.

Laying aside for a time experimental work with the electrical force, he began in September last to inquire as to the possibility of producing anæsthesia by other means. The phenomenon known commonly as the going to sleep of the limb was first passed in review, and he found, after a little trouble, a method of placing his leg in such a position as to induce this phenomenon in a marked degree. But the result was *nil*; for he found, however thoroughly the limb was numbed by this process, that, although it might feel a dead weight and its muscles might disobey the will, that externally it was sensitive to the slightest impression, and that the needle point pushed into the skin created just the same amount of pain as in other and unaffected parts of the body. The phenomena produced by this process are in fact closely analogous to those produced in a part by the transmission through it of a rapidly intermittent current of electricity; there is first, the tingling sensation, and secondly, the sensation of weight and so-called "sleep;" but the cutaneous sensibility remains the same.

He next turned attention to the application of the more powerful narcotics. The well-known fact that the tincture of acetate when applied to the lips produces a sensation of numbness presented itself naturally as open to inquiry;

and he found that aconite and some other narcotics did produce a local insensibility which might possibly be turned to account in minor or superficial operations. But in the end he discovered that this method was very limited in its effects; for, even in so thin a structure as a rabbit's ear, he could not, by the external application of narcotic solutions, produce any such degree of insensibility as to warrant him in proposing this plan as an anæsthetic process.

While these experiments with narcotics were under consideration, a thought occurred to him whether the combination of electricity with a narcotic would be of any avail. On the 31st of October he placed a sponge dipped in a solution of morphia on the arm of Mr. Gregson, and covering this with a copper plate connected with the positive pole of a small voltaic battery, and bringing the negative pole with a moistened sponge a little lower on the limb, he caused the current to pass, and produced in the course of a quarter of an hour a condition which he never obtained before; for on removing the poles he found that the part over which the narcotic had been applied was pale in color, and, unquestionably, insensible to pain. Pricked with a needle Mr. Gregson experienced no sensation; and although the experiment was very imperfect, and its effects transitory, it was sufficiently important to encourage further researches in the same direction.

Continuing these experiments for several weeks, and repeating them with different narcotic solutions on himself and on the ears of rabbits, he felt he might venture, with a more convenient apparatus, to bring them more publicly forward. He obtained, therefore, a Pulvermacher chain, consisting of 120 links or elements, each element having a surface of double extent as compared with the ordinary chain. The shock given by this chain on completing the circuit is slight even when it is in full action; while the chemical effects are exceedingly good, water being decomposed freely. He first applied this voltaic pile in conjunction with a narcotic to the ear of a rabbit. The ear was first well shaved; it was very sensitive, and a little scratch during the shaving process made the creature struggle and call out lustily. He then placed the ear between two copper plates with moist sponge interposing and connected the external plate with the positive and the internal plate with the negative pole of the battery. On establishing the circuit a slight expression of pain was evinced, and during the whole time of this application the animal was uneasy, and the plates, held gently together by insulated spring clips, had often to be readjusted. At the end of half an hour, on removing the plates, he found the ear slightly reddened in color, and more sensitive to the needle point than before.

Satisfied as to the negative influence of the simple current, he now moistened the sponge connected with the plate of the positive pole, with tincture of aconite, and, moistening the opposite sponge again with water, he applied the plates in the same way as before, and with the same pressure. In ten minutes he found that the margin of the ear would bear pricking without exciting movement; and at the end of the quarter hour, on removing the plates, the ear was as insensible as could be wished. He transfixed it in every direction, pinched it, incised it; but the animal was clearly unconscious that any auricular appendage belonged to it on the one side. The insensibility, very little lessened, was present two hours later in the day.

To the mode of producing anæsthesia thus instituted Dr. Richardson applies the term voltaic narcotism.

On January 29th of this year, he repeated the above experiment on the ear of a dog; Drs. Halford and Henry, and Messrs. Bainbridge and Gregson, being present, and lending assistance. The sponge connected with the positive pole was moistened with a drachm of tincture of aconite, to which was added one grain of the alcoholic extract; and the plates, secured with clips as before, were kept applied for thirty-five minutes. Then removed, the ear was found insensible at two points only; the plates, therefore, were once more applied with more narcotic solution, and were retained for thirty minutes. On removal, the ear was found pretty generally insensible over the parts where the plates had been applied. Transfixion could be made without the elicitation of pain; and Dr. Halford incised the ear transversely in a line nearly an inch long,

without causing any expression of pain. Fifteen minutes later, the insensibility was such that the ear could be transfixed as before without exciting sensation; and at the close of twenty minutes Dr. Halford applied caustic freely to the incised wound with the same result. The animal, meanwhile, seemed exceedingly well. When his other ear was pricked he speedily let him know about it; and, for a few minutes, from having been long held in a cramped position, he walked a little unsteadily; but he took food, showed nothing in the way of coma, and recovered without any unfavorable symptoms, the wound healing excellently well.

On the 1st of February, Dr. Halford and Mr. Bainbridge being present, the left hind leg of a dog was shaved. Around the upper part of the limb was wrapped a broad copper band, including a sponge saturated with a solution made as follows: Tincture of aconite $\mathfrak{z}\text{ij}$, alcoholic extract of aconite $\mathfrak{A}\text{j}$, chloroform $\mathfrak{z}\text{ij}$. A third part of this solution was placed on the layer of sponge. Around the lower part of the limb, below the ankle, was wrapped another plate of copper, enclosing a sponge saturated with water. This done, Dr. Richardson connected the upper plate with the positive pole of the voltaic battery, and the lower plate with a negative pole, and at once set the battery in action. Eleven minutes after the establishment of the current, the parts included between the poles were so insensible that they could be transfixed at any point without exciting pain; and at twelve minutes Dr. Halford divided the tendo-Achillis by sub-cutaneous section, with the same result. The insensibility also extended for a short distance beyond the upper plate. The current was now sustained until the end of an hour, when, the upper plate being removed, Dr. Halford proceeded to amputate the limb. The incision was commenced on the inner side of the leg, some little distance (three-quarters of an inch) below the knee, and was carried across the tibia to the outer margin of the fibula. The limb was then transfixed, and a flap obtained from the posterior half of the limb; a circular sweep was carried to separate the muscles, and the interosseous membrane was divided. Throughout all these steps of the operation, except in the last, the animal gave no wince or indication of pain; but in dividing the interosseous membrane, he drew up the limb; and in sawing through the bones he gave a scream, as if from pain or terror. In the after-steps, including the tying of two arteries and insertion of six sutures, there was no indication of pain.

Within twenty minutes the animal had eaten two plates of meat, and walked about on his three legs with the utmost unconcern. The wound healed well, and gave an excellent stump.

Subsequently Dr. Richardson narcotized the hinder leg of another dog by the same process. The operation was done too hurriedly; the leg was badly shaved, and the plates did not fit. The current was kept up for forty minutes, but long before this time the parts included between the poles were sufficiently insensible to allow of division of the tendo-Achillis by sub-cutaneous section. In amputating the limb, an operation performed by Dr. Halford, pain was evinced at one point in dividing the posterior flap, and much pain in sawing through the bones. In the other steps of the operation there was no expression of suffering. Seventeen hours after the operation Dr. Halford found it necessary to insert new sutures in the flaps. The parts were still so insensible that no pain was elicited. The wound, however, healed favorably, and the animal showed no sign whatever that could be considered unfavorable.

The first operation in the human subject under this anæsthetic process, was performed by Dr. Halford and Dr. Richardson, on February 3d. Dr. Halford had an infant patient ten weeks old, with a nævus about the size of a shilling on the right shoulder. The child was very irritable when it was brought to the operation, and continued troublesome; but the operation succeeded well. A ring of copper, lined beneath with moistened sponge, was made to surround the nævus, and was connected with the negative pole, while a disc of copper, which rather more than covered the nævus, and enclosed a thin layer of sponge, was adapted to the nævus itself, and was connected with the positive pole of the battery. This latter sponge, first moistened with water, was charged with narcotic solution, consisting of five minims of the tincture of aconite and five

of chloroform. After a quarter of an hour, during which the current was made, the narcotic sponge was removed, and the parts beneath were found to be quite white in color. They reapplied the sponge for another quarter of an hour, with more solution, and, on removal, Dr. Richardson believed the parts to be ready for operation; but Dr. Halford, wishing to be perfectly sure, urged two more applications. He then transfixed the nœvus through the base with two long needles, and ligatured the mass with all the firmness he could; but neither transfixion nor ligature gave any pain. Directly after the operation the infant fell asleep, and the recovery was as simple and quiet as could be desired.

On February 4th, Mr. Kempton, of Princes Street, Hanover Square, gave Dr. Richardson an opportunity of trying this narcotic system in a case of tooth extraction. The tooth was the last upper left molar, and very firm. It was hollow externally, and the cavity admitted of being easily filled with a dossil of lint steeped in a narcotic solution composed of five minims each of tincture of aconite and chloroform. Mr. Kempton, after introducing the narcotic, connected a fine excavator with the positive pole of the battery, and with the point of the excavator pressed on the lint, while Dr. Richardson placed the negative pole, tipped with moistened sponge, externally, immediately below the lobe of the left ear. The apparatus being imperfect for the purpose, and the application of the poles being dependent on the hands, contact was sometimes broken, and occasional slight shocks were given, of which the patient has since complained. These were accidental, and avoidable in another case. After an application of five minutes, Dr. Richardson removed the poles, and found that a sensation of numbness had commenced in the tooth, and extended superiorly and laterally, from the tooth as a centre. A new dossil of lint, again saturated with narcotic solution, was inserted in the tooth, and the poles reapplied. In two or three minutes the sensation of shock was not felt—even when contact was intentionally broken. After seven minutes, the poles were removed, and Mr. Kempton extracted the tooth without the patient experiencing the slightest sensation. He explained that he could hear the breakage between the tooth and its socket, but without the merest trace of pain.

On Saturday, February 5th, Dr. Richardson punctured a bursa on the wrist of a girl by subcutaneous section. The plate connected with the negative pole of the battery was placed on the anterior part of the wrist, while the bursa was covered with a disc, which enclosed a sponge holding five minims of a tincture of aconite, made from the alcoholic extract, each drachm of the tincture holding five grains of the extract and five minims of chloroform. This application was three times repeated for sixteen minutes. After the second application the parts to be operated on were white, and at the time of the operation were so insensible that the patient, whose head was averted, had no consciousness at all that anything was being done. Sixteen hours later the centre part, where the narcotic had been applied, was still partly insensible. The case did well.

As a test experiment, Dr. Richardson placed on another portion of the arm of this patient a narcotic solution made in the same way as that which had been used with the voltaic current. The solution was also applied in the same way under a copper disc. On removal after half an hour the skin beneath was slightly reddened, but there was no insensibility.

Since the appearance of this paper some controversy has taken place as to the relative value of the narcotic solution and the electrical force in the production of the local insensibility; but it does not seem to us that anything that has been said invalidates the experiments given above. On several subsequent occasions Dr. Richardson has publicly explained that the local application of a narcotic solution will produce a superficial insensibility, a point admitted by him in the commencement of the above paper, and abundantly proved by the previous experiments of Simpson, Snow, and especially of Nooneley. The points to be considered are, whether by the application of the electrical current with the narcotic solution, the insensibility is made to extend deeper, and to become more effective. It is certain that, with some failures, which are even more difficult to explain than the successes, Dr. Richardson has produced local insensibility by his process, in a degree singularly striking.

And although there are practical difficulties at this moment in the way, and many anomalous phenomena requiring to be explained, the subject he has opened is one which deserves careful experimental inquiry. Not an inquiry based on predetermined opposition and sustained by ebullient argument, but such a one as shall be honestly directed to the discovery of the simple question—can electricity be applied with advantage as a means of introducing narcotic remedies into parts locally? We rest satisfied that Dr. Richardson himself, guided by further experiment, will answer this question fairly, unbiased by any of the criticisms to which all men of experimental mind are of necessity subjected.

On Chloroform and other Anæsthetics; their action and administration. By JOHN SNOW, M. D., Licentiate of the Royal College of Physicians. Edited, with a Memoir of the Author, by BENJAMIN W. RICHARDSON, M. D. (London: John Churchill, New Burlington Street, 1859.)

This work, which was just completed before Dr. Snow's untimely death, furnishes us with a full account of the state of our present knowledge respecting anæsthetics. Of this fact that Dr. Snow is the author is a sufficient guarantee. The interest of the work, moreover, is greatly enhanced by a memoir of the author from the graphic pen of his friend Dr. Richardson—a memoir which furnishes us with another instructive and encouraging instance of large success achieved from small beginnings, and without any very extraordinary talents, by the force of patience and perseverance.

There are few topics connected directly or indirectly with the subject of which it treats, on which the reader will not find all the information he can desire in the work before us; but the part which is at once most interesting and most important is that which furnishes Dr. Snow's own personal experience in the use of chloroform—an experience extending to upwards of 4000 cases—and to this part, therefore, we will chiefly confine ourselves in the present notice.

And, first, with respect to the physiological effects of chloroform. These are divided by Dr. Snow into six stages or degrees. In the first there is perfect consciousness of what is going on, and the patient experiences noise in the ears, tingling in the limbs, and, very generally, considerable diminution of sensibility. In the second stage there is no longer any correct consciousness, and the patient will often endeavor to push the inhaler away. Often, also, he will laugh or sing, or talk loudly. It does not appear to be necessary to proceed beyond this state in obstetric practice; and the patient, moreover, is generally in this condition during the greater part of the time occupied in protracted operations.

In the third degree there are no longer any voluntary motions. The eyes are turned upwards. The conjunctivæ are congested, and spasms and rigidity of the muscles occur, especially in robust males. Articulation is indistinct and unintelligible. When this state is fully developed there is complete anæsthesia, which is best evidenced by the absence of winking when the edges of the eyelids are gently touched, and the patient is then in the proper state for the performance of any surgical operation.

In the fourth degree the breathings are stertorous, the pupils dilated, and the muscles completely relaxed. There is of course perfect insensibility. It only seems requisite to proceed to this stage in the reduction of long-standing dislocations in muscular subjects, and in very painful operations. After this state the breathing becomes embarrassed, the heart pulsating distinctly, even after the breathing has altogether ceased. This might be termed the fifth stage. The ultimate and last effect of chloroform is to destroy the irritability of the muscles, and to produce post-mortem rigidity.

Dr. Snow agrees with Flourens in his remarks upon the action of sulphuric ether, and considers them equally applicable in the case of chloroform, namely, that, "1st. The cerebral lobes first lose their power—that of intellect. 2dly. The cerebellum loses the power of regulating locomotion. 3dly. The spinal marrow loses the principle of sensibility and of motion, the medulla oblongata

still retains its function, and the animal continues to live: with loss of power in the medulla oblongata, life is lost;" but the ganglionic nerves, adds Dr. Snow, may still perform their functions, and the heart and intestines continue to move for a time, often with vigor.

As to the circumstances which influence or modify the action of chloroform, the following particulars are enumerated:—

1. Age. Chloroform acts very favorably on children. Its influence subsides slowly in old persons. Dr. Snow administered it to one patient of more than ninety years of age without any ill effect.

2. Strength or debility. Those who are weak are quickly and favorably affected by it; the strong and muscular struggle much.

3. Hysteria. This is occasionally produced by the inhalation of chloroform. Care should be taken, and the quantity administered should be much diminished during the irregular breathing which often accompanies this state.

4. Epilepsy is occasionally brought on in those who have already suffered from a previous attack.

5. Pregnancy and the menstrual period do not interfere with the administration of chloroform.

6. In diseases of the lungs, especially in phthisis, chloroform appears to exert no prejudicial, but rather a soothing effect, allaying the cough.

7. In diseases of the heart, though the use of chloroform is thought to be unsafe, especially when there is fatty degeneration, the author contends that there can be no objection to it, since on several occasions he has found that there is less disturbance of the pulse when under its influence than when the patient is enduring pain.

8. Cerebral affections offer no obstacle to the administration of chloroform.

In reference to the preparations for inhaling chloroform, Dr. Snow, in common with others, suggests the avoidance of a full meal immediately before inhalation, in order that vomiting may not occur. The supine, or at least the semirecumbent posture should always be insisted on, and everything should be done which may tend to tranquilize and soothe the patient.

Various modes of administering chloroform have been adopted since its introduction. Dr. Snow objects to a cambric handkerchief on account of the difficulty of regulating the quantity, and recommends his own well-known inhaler, of which a good engraving is given.

Although the pulse of itself gives no indication as to how far a patient is under the influence of chloroform, it is proper to pay attention to it, not only during the first administration, but also throughout the operation, especially if it be attended with much bleeding.

In elderly persons the pulse sometimes becomes intermittent or irregular, and in such cases it is well to discontinue the inhalation for a few seconds. If the precaution be taken to insure that the air the patient breathes shall not contain more than five per cent. of the vapor, the pulse can never be seriously affected by the direct action of the chloroform on the heart, and then the state of the breathing affords the best warning against continuing the inhalation for too long a period. Wherever stertor is observed the inhalation should be suspended.

In cases where there is violent struggling Dr. Snow has always succeeded in subduing it by continuing the inhalation slowly and cautiously, taking care that the patient did not take in a deep inspiration of the undiluted vapor. The action of chloroform upon the pupils does not appear to be constant; these being sometimes dilated, sometimes contracted, and varying in some measure with the amount of light.

The average time required for the due administration of chloroform is two minutes in infants, three minutes in children, and four or five minutes in adults. The patients usually become conscious in five minutes after the discontinuance of the inhalation; children often drop off into a deep sleep that may last for some hours. A little languor usually succeeds the recovery, and it is desirable that in all cases the patient should sit or lie quietly for an hour or so, and the more so as this measure frequently prevents vomiting. If the vomiting which so often succeeds should not subside of itself, a little

brandy and water should be given, and if this fail in removing it a dose of opium is usually successful. Faintness and depression rarely occur. They are usually only precursory to the vomiting, and should be treated by ordinary means.

In the section on the cause and prevention of death from the inhalation of chloroform, Dr. Snow arrives at the following conclusions:—

1. That if an animal be kept for a long time under the deep influence of chloroform, it becomes ultimately exhausted, the circulation and respiration being gradually weakened, and ceasing nearly at the same time.

2. That when chloroform is given in moderate quantity, that is, where it constitutes about four per cent. of the inspired air, the respiration *first* declines, and then ceases, from the action of the chloroform on the nervous centres, after which the heart, receiving only venous blood, charged with the narcotic, also gradually falls in its action.

3. That when the dose of chloroform is considerable and rapidly given, constituting ten, twelve, or more per cent., the circulation and respiration fail together, the action of the heart being arrested by the direct influence of the chloroform upon it—a true paralysis of the heart occurring.

4. As the result of several experiments upon animals with air strongly impregnated with chloroform, though this was withdrawn as soon as the heart ceased to beat and fresh air was drawn in by inspiratory efforts, it very rarely had the effect of restoring the heart's action, although this happened so frequently when that organ had ceased to act, on account of suspension of the breathing, as the effect of more diluted vapor.

It follows as the application of these conclusions that, in cases where chloroform considerably diluted has been given slowly, death is unlikely to occur. The heart's action continues even after respiration has ceased, and there is a tendency to spontaneous recovery, which may be materially aided by artificial respiration.

On the other hand, air saturated with chloroform, that is, containing ten or twelve per cent. at 60° Fahr., or nineteen per cent. at 70°, may, if given rapidly, at once paralyze the heart: and from this condition the chances of recovery are small. Details of fifty fatal cases are given, and certain points of analogy are pointed out as existing in all of them. The death of the patient was in nearly all the instances sudden. In some cases death occurred at the very commencement of the inhalation, in others it occurred after some moderate space of time, and in a third set of cases death resulted after the vapor had been long inhaled in a very concentrated state. Many of the patients fell into a state of collapse, becoming white or livid in the face; sometimes convulsions, in other instances complete relaxation of the limbs occurred. Though the pulse was often closely attended to, in many of the cases no preliminary symptoms occurred: it beat regularly and naturally till it stopped suddenly *brexer*. The breathing was noticed in some cases to be irregular, often with a "catch" or "hitch," and in those cases where the vapor had been long and fully inhaled, it became stertorous and slow.

Dr. Snow concludes that in all the cases which are fully detailed there is every reason to believe that death took place by cardiac syncope, or arrest of the action of the heart. In forty out of the fifty cases given the symptoms of danger appear to have arisen from this cause, and not from the over-action of chloroform on the brain and nervous system. It was only in four cases that the breathing appeared to be embarrassed and arrested, by the effect of the chloroform on the brain and medulla oblongata at the time when the action of the heart was arrested by it; and only in one of these cases that the breathing was distinctly arrested by the effect of the chloroform, a few seconds before that agent also arrested the action of the heart.

The post-mortem appearances which were commonly met with, consisted of a fluid state of the blood, an empty state of the cavities of the heart, with not unfrequently fatty degeneration of its muscular tissue, and some congestion of the lungs and brain, rarely considerable in degree.

The means resorted to for recovery when death was either impending or manifest, consisted in different instances in placing the patient, if previously

sitting, in the prone posture, dashing cold water over the face and body; galvanism to the back and belly, to produce contraction of the diaphragm; artificial respiration, either by insufflation or by the Marshall Hall method; and lastly, the administration of stimulents, as brandy, ammonia, and the like.

With respect to the nature of the syncope which produces death, Dr. Snow is of opinion that there are two forms, one form being illustrated by the mode of death which ensues after great losses of blood, in which the heart ceases to beat from an insufficient supply of blood; and a second form, which he terms cardiac syncope, in opposition to the former or anæmic syncope, a form which he illustrates by death from narcotics or from fatty degeneration of its tissue, or from its being overpowered by the quantity of blood distending it.

The safety with which chloroform may be administered when due care and caution are exercised, may be gathered from the fact, that Dr. Snow had memoranda of 4000 cases in which he had given it, without, as he believes, the loss of a single patient. In enumerating the different operations in which chloroform has been given, it appears that there is scarcely any operation in which it has not been given, except that of cleft palate.

A very remarkable point is made out by the statistics of anæsthetics, namely, that all the great amputations are much less frequently performed than they were a few years ago. This appears to be owing to the great facilities that are now given to the surgeon for making exploratory incisions, &c., while the patient is insensible, and also to the increasing frequency of the operations for excision of joints.

Chloroform should be given in parturition, according to Dr. Snow, where the patient desires it, and the time for administering it is when the *os uteri* is fully dilated, and the expulsive pains are present; yet it may be given earlier. The anæsthesia induced should never be complete, otherwise the assistance of the respiratory muscles would not take place. Only a few minims should be used at one time, and very little may be necessary, though in a protracted labor of thirty-one hours, as much as seventeen fluidounces were given by Dr. Snow.

The inhalation may be repeated when the placenta is being thrown off. The chief medical cases in which chloroform has been used are, neuralgia, asthma, spasmodic croup, whooping-cough, infantile convulsions, delirium tremens, delirium in fever, tetanus, and hysterical paralysis and contractions.

III.

REPORT ON THE PROGRESS OF MIDWIFERY.

On the Treatment of Puerperal Fever. By MM. GUÉRARD, DEPAUL, BEAU, HERVEZ DE CHÉGOIN, TROUSSEAU, PAUL DUBOIS, CRUVEILHIER, DANYAU, CAZEAU, JACQUEMIER, LEGROUX, BÉHIER, BOUILLAUD, PIGNY, VELPEAU, J. GUÉRIN, DEPAUL. ('Archiv. Gén. de Méd.' April, May, June, July, August, 1858.)

On the 23d of February, 1858, a paper having the above title was read before the Academy of Medicine in Paris by M. Guérard. Its main object was to provoke a discussion, and so well did it succeed in this, that four whole months were allowed to elapse before the matter came to an end. It will not be necessary, however, to do more than indicate some of the chief points in the argument; for, as it seems to us, the discussion, though long enough and not without sufficient briskness, did not result in anything either novel or important.

It must be premised, that the term "puerperal fever" is not made to include a certain number of phenomena which may be present in newly delivered women—milk fever, bilious or gastric fever, or that typhoid state which is not unfrequently developed after the tenth day in consequence of certain changes in portions of retained placenta, or in uterine conglua. By the term is understood the group of phenomena which is ordinarily and regularly classed under it.

With respect to the nature of puerperal fever, MM. Guérard, Dubois, Danyau, and Depaul, are of the same mind. They regard it as an idiopathic septic disorder. They think that the epidemic prevalency, and the infectious and contagious characters, are conclusive arguments in favor of the view. A miasm penetrates into the economy, they think, and produces consecutively the rapid and multiplied formation of purulent collections; and these collections are the effects, and not the cause, of the alteration of the blood. This they hold to be proved expressly by the fact that there are numerous fatal cases without any trace of pus, and others where there is pus in the veins and lymphatics, without any evidences of local inflammation. The miasm itself they look upon as arising in the joint influence of the locality in which the puerperal woman is placed, and of the woman herself.

The other speakers combat these statements. M. Beau is of opinion that the disorder is an inflammatory development of an inflammatory diathesis. With M. Pigny it is still an inflammation—uteritis, phlebitis, peritonitis. M. Cazeau regards it as a low inflammation, connected with some peculiar change in the blood, or brought about by some epidemic constitution of things. With M. Jacquemier, the disorder is metro-peritonitis. With M. Legroux it is phlebitis, lymphatitis, metritis, metro-peritonitis. M. Béhier considers it as a purulent phlebitis. M. Bouillaud holds that puerperal fever is a septic and purulent infection of the blood, associated with an inflammatory element. M. Trousseau regards it as an inflammation of a peculiar nature, due to a specific cause, which may happen not only in puerperal women, but in the fetus, in the newly-born infant, in women at any time, and even in wounded persons of either sex or any age. M. Cruveilhier holds it to be a malady arising in miasmatic infection, and connected with a purulent condition of the lymphatics of the uterus and its dependencies. With M. Hervez de Chégoin, it is sometimes purulent infection, sometimes putrid infection. With M. J. Guérin it is a putrid infection, caused by the uterus remaining in

the state of an open wound, for want of the proper and natural contraction in its fibres.

With respect to treatment, there was no little agreement as with respect to pathology; but all seemed to allow that there was no one invariable mode of treatment for all cases and all times, and none which in any case deserved absolute confidence. Quinine, mercury, ipecacuanha, and other remedies—things the most dissimilar—had each their advocates, and there was no agreement as to prophylactic measures. M. Cruveilhier was for suppressing all great maternity establishments, and having arrangements made by which the poor should be confined at home, or in small establishments in very healthy places.

Practical Midwifery: comprising an account of 13,718 Deliveries which occurred in the Dublin Lying-in Hospital during a period of seven years, commencing November, 1847. By EDWARD B. SINCLAIR, A. B., T. C. D.; and GEORGE JONASSEN, M. D., Edin. (London and Dublin; Churchill, and McGlashan and Gill, 1858, 8vo, pp. 514.)

The title of this work, 'Practical Midwifery,' scarcely expresses its purport. It is a most valuable report of the Dublin Lying-in Hospital, from the year 1847 to 1854—the period of Dr. Shekleton's superintendence.

A brief history of this great hospital is given in the introduction. It was opened by Dr. Bartholomew Moss, in 1756, and placed under the control of a master and two assistants—the former for a period of seven years, the latter for three. The master was elected from the assistants, the assistants from pupils of the hospital. The pupils were of two classes—"students in medicine or apprentices of surgeons," and "women who intend to practise midwifery." Both were under the instruction of the master and assistants, and at the end of six months they received, after examination, a certificate of competency. A register has been kept of the pupils since the foundation of the hospital, and "a careful perusal of the records has supplied us with the following information: from the year 1786 to the close of 1854 there have been 2875 medical pupils; and, in addition, 656 women, who have attended for the term of six months; the former to learn obstetric medicine, and the latter the nurse-tending of lying-in patients. An analysis of the 2875 gentlemen who have been registered shows that there were 2608 Irish, 220 English, 14 Scotch, 4 from the British army, 8 from the colonies, 16 were Americans, 2 Germans, 1 a Swiss, and 2 were Russians. It may be interesting here to mention, that the first gentleman who crossed the waters to attend the practice of the hospital was a Mr. Cunningham, from Pennsylvania, registered on the 9th of May, 1798; and the first Englishman we find entered was a Mr. Harrison, who was registered on the 15th of August, 1838."

From the opening of the hospital to the termination of the year 1847 there have been 136,100 women delivered within its walls. These have given birth to 158,535 children; 2366 of the women delivered had twins; 33 gave birth to triplets; and but one had quadruplets. Of the 136,100 women delivered, 1203 died in childbed. Of the total number of children born, viz., 158,535, there were 82,314 males, and 76,221 females, leaving an overplus in favor of the males to the amount of 6,093. Of the entire number of children born, 9,291 were dead-born, 5,733 died in hospital, and 143,511 went out alive.

Thus it appears that about 1 child in every 174 was stillborn, and 1 out of every 26 born alive died in hospital; it is also apparent that nearly 1 woman in every 66 had twins, and 1 in 4730 had triplets. The mortality of the women delivered, from all causes, was 1 in 82.

Patients were not admitted into hospital till their labor had commenced, or until there were symptoms present to indicate its approach. As soon as possible after the entrance of a patient into the labor-ward, her condition was inquired into by one of the assistants, and any treatment adopted that was immediately demanded. When she was found to be in the second stage of labor, she was undressed, and placed upon a small, low, narrow bed, having curtains, open at the top, and situated at one side of the fireplace, called "the couch,"

upon which, when practical, all patients were delivered; and here she was attended *secundum artem*. She was then permitted to remain, for an hour after her delivery, on this couch; and at the expiration of that time, should there have been no contra-indication—such as a tendency to hemorrhage, &c. &c.—she was carried horizontally to her bed, which was fresh and dry for her reception. "Primiparous women were not permitted to rise till the fifth day; otherwise, they were allowed to be dressed, and to lie outside the bed, on the fourth; and on the eighth day they were discharged, if well enough, and if, as before mentioned, they desired it." Such, however, was the *ris rite* of the Irish parturient, "it was with the greatest difficulty patients could be prevailed upon to remain in hospital even so long as the eighth day; and numbers, to our own knowledge (the author's), have insisted upon being discharged before the ordinary time."

The arrangements to obviate the scourge of all such hospitals—puerperal fever—are important. The hospital contains 103 beds, which "are diffused over eleven wards, nine of which are used in their turn for the reception of labor patients, one as a convalescent room, and the other for the reception of women laboring under uterine affections, or diseases of the sexual system in general. These wards, with the exception of three, are distributed along the first and second stories of the building, the ground-floor being occupied by the officers of the institution. Through the centre of each flat runs a corridor, lighted and ventilated at each end; and on either side of these are two wards, the front ones looking into Great Britain street, and the rear into Rutland Square, commonly called the 'Rotundo Gardens.' Each ward consists of one large room, off which there are two small ones; in the former patients are delivered and retained, and the latter are found useful when it is deemed advantageous to isolate certain cases, especially those of a contagious nature."

"Through these wards is maintained a perfect and thorough ventilation, the foul air being carried off by means of vent tubes, which open upon the roof of the building; while a fresh supply is admitted from the corridors through the doors, all of which are perforated for that purpose. The effect of this arrangement is most striking, from the nearly perfect absence of the puerperal odor,† even at the time that patients are being delivered in the apartment; and to this free ventilation may, we think, in some measure be attributed the paucity of those visitations of puerperal fever, so much more frequent among the large continental lying-in hospitals, where the same system is not adopted. It is, however, a fact, that since this method of ventilation was had recourse to, the mortality amongst the infants has been very much lessened; for previous to its introduction the deaths averaged 1 in every 4½ of those born alive, whereas they afterwards fell to 1 in 24; and during our period of residence a case of trismus, formerly of such frequent occurrence, was looked upon as a rarity."

"The nine labor wards were filled in succession in the following manner: for instance, as soon as the beds of the first were occupied with recently delivered women, labor was transferred to the second, and so on; and it might be taken, as an average, that each had its complement in less than forty-eight hours—generally in twenty-four. Now, the patients, if sufficiently well, and if they desire it (for it was, and we believe, still is, perfectly optional with them), were discharged on the eighth day from their delivery; but, under any circumstance, the ward in which they were delivered was emptied upon that day, and the patients, if not strong enough to be discharged, were removed to the convalescent room. Thus in eight days the ward first filled was empty:‡

* These small rooms are sometimes used as "private wards," when practicable. Thus any one who may desire to be delivered, and treated privately, can have one, on paying the sum of £1 for such conveyance, which sum goes to the funds of the hospital.

† This fact is also mentioned by Dr. F. H. Arneth, op. cit.

‡ If any case of puerperal fever, or other disease of a contagious nature, had occurred in the ward, it was at once shut up for a considerable space of time, and the necessary measures adopted for its purification. In the mean time, one of the idle wards, which were closed for want of funds, was opened for the reception of patients in place of the infected ward.

and then a thorough cleansing and scouring was put in practice, and a free draught of air permitted through it, till just before it was again to be occupied with a fresh batch of labor patients, which was generally not until it had two or three days' rest."

During the mastership of Dr. Shekleton, 13,748 women were delivered of 13,933 children, 7,177 being males, 6,756 females. The number of males exceeded that of the females by 421. "The total number of stillborn children, from all causes, was 968, or 1 in about every 14, and nearly one-third of the total number given birth to. Of these 968 stillborn, 487 were putrid at the time of birth, which, deducted from the total number, viz., 261, leave 481, or nearly 1 in every 28 of entire births, whose death was either the result of actual labor, or took place immediately prior to its setting in. Upon analyzing these latter, we find that 284 were males, and 197 were females, and 99 of the 481 were premature—namely, 43 males and 56 females.

"The proportion of women having twins can be seen, from the above statements, to have been about 1 in 59; and the proportion of women dying, from all causes, 1 in every 84 and nearly one third. In order, however, to arrive at a correct idea of the mortality of the hospital, we may be permitted to deduct from the total number of deaths those who were admitted in a dying state, which latter amounted to 17. We thus leave a balance of 146 dying from all causes, or, *quam proxime*, 1 in 94. Then, if we deduct from the above 146 fatal cases those whose deaths had arisen from visitations of puerperal epidemic—viz., 70 victims to that disease—we reduce the number to the sum of 76 dying from all causes, or 1 in 180½." But upon examination of the 76 remaining fatal cases, we find in all 40 deaths from other than puerperal causes. If, then, we deduct these from the 76 fatal cases, there remain 36 deaths which originated from labor, or 1 in every 381½ of those delivered.

The mortality, including that from puerperal fever and all other causes, was 1 in 84 cases; deaths from labor alone 1 in 381. This forms a most favorable contrast to the great continental hospitals, whose mortality varies from 1 in 13 to 1 in 25 cases. It was found also, that the least amount of mortality was in the months of May, the greatest those of December, the former series being in a ratio of 1 in 184½, that of the latter 1 to 46½. "The May series during the seven years presented the least amount of mortality, and the greatest amount of deliveries; and December the least amount of deliveries, and the greatest amount of mortality."

The following is the arrangement of labors adopted in the report:—

CLASS.	DIVISION.	SUBDIVISIONS.
I. NATURAL LABOR	1st. Purely natural	{ a. Face. b. Face to pubes. c. Arm with head.
	2d. Varieties of natural	
II. DIFFICULT LABOR	1st. Tediums	{ a. Forceps. b. Crotchet.
	2d. Instrumental	
III. PRERNATURAL LABOR	1st. Breech and lower extremities	
	2d. Thorax and upper ditto	
IV. ANOMALOUS LABOR	1st. Plurality of children	{ a. Twins. b. Triplets.
	2d. Prolapse of funis	{ a. Accidental. b. Unavoidable.
	3d. Hemorrhage	
	4th. Convulsions	{ a. Apoplectic. b. Hysterical
	5th. Rupture of uterus, vagina, or both	
	6th. Inversion of the uterus	
	7th. Premature labor	
	8th. Retained placenta	
	9th. Labial thrombus &c &c.	

With regard to *natural labors*, the practice with regard to the support of the perineum is important.

"During the second stage of labor, more especially with primiparous women, great care was directed towards the support of the perineum, but not until the head has pushed the structures beyond the nates—in other words, when a large tumor occupied that particular region. The support was only maintained during uterine action; and it was considered that the hand, without any napkin intervening between it and the parts, save just over the anus, and a little distance from its verge, was the best practice, since, by this means, a more equable and exact sustaining power could be rendered, and the rate of progress better estimated. The right hand was used for this purpose, after either of the following manners: Sometimes the ulnar edge of the hand was made to rest across the posterior boundary of the perineum, and the cleft between the thumb and forefinger to correspond to the edge of the posterior fourchette. At other times, the heel of the hand was placed so as to correspond to the posterior boundary of the perineum, and the hollow formed by the palm and fingers, gently grasping the distended structures, made to form a continuation, in a direction forward, of the curve of the sacrum and coccyx. The support was always forward, towards the central point of the arch of the pubis. Although particular attention was paid to the following out of this practice, there happened, nevertheless, and that often, *slight lacerations*; and it was the experience of the physicians connected with the hospital that such lacerations must sometimes occur, even under the hand of the most experienced and careful accoucheur. These rents, happily, for the most part were trifling; that is, only engaging a very short distance of the structures. When slight, they were found to be of no importance whatever, since in all cases that came

under notice they healed rapidly, and did not prolong convalescence. In very severe cases of laceration, however—which were most rare, and concerning which we shall report more fully hereafter—the consequences were not of a trivial nature.

"During the time the right hand was engaged with the perineum, and just as the head was emerging from the outlet, it was invariably the practice to place the left over the fundus of the uterus, and with it the organ, as its capacity diminished, was, in the language of the hospital, 'followed down.' This treatment was strongly urged for the purpose of insuring a uniform contraction of the uterus, and thus rendering the woman less liable to either the occurrence of hemorrhage, or the retention of the placenta. In 'following down the uterus,' with the left hand, it was considered advisable that its ulnar edge should be completely above the fundus, in other words, that the operator's hand should not be permitted to press the uterine tumor, but rather to grasp the organ at its summit. Some of the cases of retained placenta from irregular contraction, were thought to have originated from such mal-application. The pause which generally follows the delivery of the head of the fetus was occupied in the usual manipulations, unnecessary to be detailed here; it may, however, be right to mention that when the funis was coiled round the neck, it was the practice to permit the shoulders to slip through the slackened loop or loops; but, when sufficiently loose, the funis was slipped over the head. In not one single instance was it found imperative to divide the cord prior to the complete birth of the infant."

"Of the 11,874 mothers, whose deliveries had been purely natural, 67 died: 41 died of puerperal fever;* 4 of phlebitis; 3 of typhus; 2 of acute bronchitis; 1 of asthma; 1 of acute pleuritis; 4 of pneumonia; 3 of phthisis; 3 of disease of the heart; 1 of mental depression; 1 of erysipelas; 1 from scarlatina; 1 from dactylitis; and 1 of abscess in the brain."

The effect of mental depression is remarkably shown in one case:—

"The patient, aged 23, was admitted at full term of her second pregnancy, and delivered after a labor which lasted twelve hours—the second stage having been perfectly easy—of a living girl. For the first two days of her convalescence, she progressed as favorably as possible, much more so than could have been expected, inasmuch as she was found frequently crying, and in a state of mental depression, the cause of which was a profligate and abandoned husband. On the third day she became very feverish, complained of pain in her side, and was sleepless. For this she was treated, but without effect. She did not appear to labor under any inflammatory attack of any organ whatever, and the pain she had complained of in the right side was slight, and not accompanied with any physical sign of disease; however, she gradually sank, seemingly from pure mental depression, and died on the eleventh day after delivery. An autopsy was not permitted.

Another case of sudden death after delivery is also recorded, which is deserving of attention, because of its close resemblance to two cases of sudden death that occurred in London some time ago, which were then attributed to the inhalation of chloroform; no chloroform was given in this case.

The patient was "a woman, aged 26, admitted for her first delivery in 1848. Her labor lasted twenty-three hours, the second stage having been a little tedious from inertia, to overcome which stimulating enemata were administered. Recourse was subsequently had to ergot, the enemata having proved of no avail; and the ergot was repeated in half an hour after the first dose. Twenty minutes after the ergot pains had set in, the child—a female—was born. Though the heart had been heard beating naturally previous to the exhibition of the second dose of ergot, it pulsated feebly after delivery, and respiration could not be established. This woman complained of pain in the epigastrium before her labor had commenced; and after its completion, when the binder was being applied, she referred to that region as the seat of still further uneasiness. An hour after delivery the pulse was 100; she then fell asleep, and continued so for six hours. On awaking she complained of great difficulty

* Under this term is included both peritonitis and metritis.

of breathing; her countenance had become livid and anxious; her pulse much more frequent; her belly tympanitic; and she prayed that she might be raised in bed. She was bled to twenty ounces, a sinapism was applied to the chest, and she was ordered a draught consisting of camphor and ammonia. Relief was but temporary; the dyspnoea recurred with increased severity; the extremities became cold; the pulse imperceptible; and in twelve hours after her delivery she was dead."

With regard to *face presentations*, no instance occurred in which the chin did not, during the course of labor, move forward more or less completely under the pubic arch, and become first delivered. There was no case of face presentation in which the chin moved towards the sacrum, and the vault of the head came under the pubic arch previous to delivery. When the face occupied a position behind the pubis the case was left to nature, unless delay compelled interference. Though often tried, it was not the experience of the attendants that these positions could be righted by manipulation.

In *breech presentations* it was found that in single pregnancies, when the fetal heart was heard most clearly at or a little above the umbilicus, the presentation was found to be the nates. The presence of the meconium with the discharges was not considered by any means a decisive proof of the existence of breech presentation, since it had been often observed with head presentations, and the color given to the discharges, though like such as would have been caused by the mixture of meconium, not frequently had its origin from other sources. Few cases occurred in which interference was unnecessary; some, however, were observed, but all happened in healthy women, who had very roomy pelves, and who had previously given birth to more children than one. The manner of delivery was founded on the principle of leaving the case as long as possible to the natural efforts. The mode of procedure was as follows:—

"The woman having been made to lie in exactly the same position as in natural labor, if the breech was found presenting in either the first or second position, the pains natural in every respect, and the pelvis roomy, no interference was deemed necessary beyond attention to the perineum while the nates were passing through the vulva. This was guarded while the breech passed, and when the feet of the child came to touch the posterior fourchette, their too sudden egress was prevented by the hand of the attendant which was unoccupied. When the lower extremities were completely delivered, if the uterine action was sufficient, the body of the child was permitted to be extruded till past the umbilicus; but if the action was insufficient, traction was made from the hips of the child to effect that purpose, a napkin having been previously passed round the delivered parts. When the cord was under control, it was relieved of tension by drawing down a knuckle of it, and the state of its pulsations was ascertained; if they were strong, the delivery was still further permitted to proceed naturally; if, on the contrary, they were weak, had just ceased, or could not be felt at all, traction was made. When the child's thorax was delivered so far as the pubic axilla, that is, as soon as the axilla of the child could be felt behind the pubis, even supposing the labor had proceeded so far without any assistance whatever, it was then generally experienced that manual interference became necessary, the arms having changed from their flexed position across the thorax to a state of extension alongside of and above the head. If traction had been made, this change of position of the arms was certain to have taken place. In addition to the necessity of 'taking down' and delivering the arm, any delay was now dangerous, from the greater liability to pressure arresting the circulation through the placental system of the fetus. When, then, the axilla could be touched just behind the pubis, the 'pubic arm,' as it was called, was first extracted. This arm was chosen as the first to deliver on account of its being more easily accessible than the 'sacral' one. In bringing down the arm, two or more fingers of the right hand were introduced (while the body of the child was drawn a little towards the sacrum by the left hand) behind the pubis, and over the scapula; from thence they were carried over the acromion process and shoulder-joint, along the arm, down to the flexure of the elbow, and during their passage towards that point from the

shoulder traction was being made in a direction from the above downwards, and then towards the outlet, sweeping the arm across the chest, the delivery of the extremity having been completed from the forearm. Having freed and delivered the pubic arm, the body of the child was taken in the right hand, and it was directed forwards towards the pubis, making the pubic arch a fulcrum, so as to bring the sacral shoulder nearer to the outlet; and the body was retained in that position during the manipulation of the posterior extremity, in order that room might be afforded for the fingers of the left hand to reach the sacral scapula, and to bring down the posterior or sacral arm in a similar manner to the pubic one. When the arms had been delivered, traction was again made upon the body of the child, so as to bring the base of the cranium as low as possible into the pelvis. At this period of the delivery no time whatever was to be lost. The traction necessary to bring the head into the pelvis, as a matter of course, changed its position from its original state of flexion of the chin upon the top of the sternum to one of extension of the chin from that part, or, in other words, it changed the opposing diameter of the head from the occipito-bregmatic, one of the shortest of its long diameters, to occipito-mental, the longest of those diameters, and thus further delivery was arrested, from locking of the head, till the malposition was rectified. This was accomplished in the following manner: with one or two fingers of the right hand against the occipital bone, the child's occiput was pressed upwards, which caused the chin to descend lower in the pelvis, and brought the mouth within reach, into which was then placed the forefinger of the left hand, when the occiput was still further raised with the right, and the chin brought down to the top of the sternum, in which position it was retained, and its occipito-bregmatic diameter thus made the opposing one. With the right hand *only*, and from the shoulders, traction was now again made in the direction of the axis of the outlet. The head's position was steadily maintained till completely delivered.

"Great speed, especially in first cases, was not desired during the progress of the waters through the pelvic space, since the slow and natural dilatation of that passage by the breech rendered the subsequent delivery of the head more easy and safe; besides which, the cord was considered in no danger so long as it was protected by means of the lower extremities flexed against the abdomen."

In *premature cases of breech presentation*, little assistance was necessary. "When manipulation was required, however, in these cases, the upper extremities of the fetus were left to themselves, even when extended beyond or behind the head; for if removed from that position and delivered in the ordinary way, experience proved that contraction of the fibres of the cervix and os uteri was almost certain to take place, so as to incarcerate the head in the uterus, and thus strangle the umbilical cord against the neck of the child. This accident occurred more than once, and no efforts could free the fetus from the grasp of the cervix."

The instrument invented by Mr. Robertson to establish respiration before the birth of the child had been tried by Dr. Shekleton in one instance, and found of decided utility; "but for it," it is said, "we should have lost the child." With regard to *foot presentations*, the point most relied on as marking the presence of a foot at the os uteri, was the even head-like line having an inclination in some direction; this with the fact that the toes cannot be doubled up like the fingers, will serve to guide the practitioner in doubtful cases.

"The first and chiefest point in the treatment of footling presentations was to keep the membranes entire as long as possible, in order that the bag of waters might dilate the os uteri to a good extent before the extremities came into the pelvis; the woman was, therefore, maintained in a horizontal position. In all footling cases, especially with primiparas, when the membranes were ruptured very early (which was often the case) the risk to the child was considered to have been increased."

Knee presentations were very rare; there were only seven altogether, and they of course became footlings.

Presentations of the superior extremities "required to be early discovered—this was the first indication in their treatment; the next, if they admitted of it, to turn and deliver at the proper time. When it was impossible to turn, evi-

ration was the only resource. Of the diagnosis in these cases something has been already said. The shoulder was distinguished from the knee by the axilla and ribs. It mattered not in the treatment whether it were shoulder or elbow. The elbow was distinguished from the knee by its smaller size, its projecting olecranon and sharper condyles. The hand from the foot, not only from the absence of the even and inclined beaded line, but also from the presence of the deeper clefts between the digits and the great divarication of the thumb from the first finger. In addition to these marks of distinction, the hand admitted of being flexed."

Taking the whole of these cases collectively, it was necessary to complete delivery in but one instance by performing the head and extracting with the crotchet, a tolerable proof that the rickety pelvis is not frequently met with in the Dublin hospital.

Difficult labors are divided into tedious and instrumental: by tedious is understood those in which the child is delivered, after twenty-four hours, without any assistance. The delay was generally, but not always, found to occur in the first stage, and it was considered that a lengthened first stage had always a tendency to render the second also tedious. There was not, therefore, that immunity from danger attached to it by Dr Churchill and others. In enumerating the different states of rigidity of the os uteri causing a tedious labor, the authors state that—

"We never met a single case of what might be called a cartilaginous os uteri, or of disease of the uterine cervical tissue, which rendered dilatation impossible."

In strong, masculine country women, a form of rigidity was met with which might be predicted from their appearance, even before an examination was made. The os uteri presented to the touch either a very thin, but rounded margin, firm, tense, and wiry, or a hard, thick edge—more frequently the former.

This hard, thick edge has been sometimes described as cartilaginous, and must not, therefore, be mistaken for that diseased condition of the os uteri described by the same term, which the authors have never met with.

Another form of rigidity, which they call "undilatable," was induced by too early rupture of the membranes, by which the expanded cervix was compressed between the presentation and the brim of the pelvis; oedema was the result, and "the oedematous sensation could not be mistaken, and the os was often painful when touched. The first condition was treated by venesection and nauseating doses of tartar emetic, either separately or conjointly; but the tartar emetic was generally found sufficient. The full, plethoric, and masculine country female occasionally required both. The tartar emetic was given in a solution of the strength of half a grain to the ounce—an ounce for the first, and perhaps for the second dose; and after vomiting had been induced, the nausea was kept up by half-ounce doses at intervals of an hour. This mode of treatment acted in a most remarkable manner upon the truly rigid os, when steadily persevered in. As soon as the doses of the solution were discontinued, the nausea quickly subsided. That form of rigidity, or 'leathery os,' induced by the early rupture of the membranes and subsequent pressure, rarely required active treatment. The horizontal position, and tepid-water rectal enemata were had recourse to; the latter were found most useful, and seemed to soothe the parts, while at the same time they acted as stimulants to the uterus, which in these cases had generally been rendered more or less inefficient from the state of the tissue of its cervix."

Extrema nervous irritability rendered the dilating pains quite inefficient, and induced a feverish state of the system.

"In the treatment of such cases two agents were made use of, viz., chloroform and opium; latterly the former was the favorite remedy. The inhalation was carried only so far as to soothe the patient—not often to complete anaesthesia; sometimes, however, when an hour or two of complete rest was deemed necessary, it was persevered in so far. After the exhibition of chloroform to complete anaesthesia in this stage of labor, and given for the reason above mentioned, we have known patients sleep, apparently perfectly naturally, for a

considerable period. Inertia would sometimes set in, after a sleepless night, or some weary hours of teasing, inefficient pains, and the patient, who had been previously calm and cheerful, would become irritable and impatient; in such cases a full dose of opium, repeated if necessary, was the practice. The opium generally put a stop to the uterine action, when sleep immediately ensued, and that state was maintained by the further effects of the drug. On awakening, in such cases, the labor was completed happily without further annoyance."

Rigidity of the soft parts within the pelvis was not often observed, but sometimes "an extremely muscular condition of the interior of the pelvis, rendering the passage of the head slow, from the unyielding nature of its tissues, was often found in healthy patients, who entered for their first labors at or a little over the age of thirty. Enemata were useful in such cases also; but an extreme muscularity was frequently connected with a peculiar state of pelvis termed 'masculine.' We shall recur to the subject hereafter, when, at the same time, we shall speak of disproportion and malposition, &c."

Ergot of rye was not generally used to excite the action of the uterine, but was administered in that form of inertia where it appeared that all that was required to complete the delivery was strong action. It was given while the head was within reach of the forceps; so that at any time, should the foetal heart have become affected, the child could be saved by that instrument.

In *instrumental deliveries* the rectus was never had recourse to; the forceps were always preferred, and the circumstances which rendered their application necessary were—absolute or impending danger to the mother's life, risk of injury to the mother's structure, and the threatened failure of the foetal circulation. No fixed rule for their application was acted upon, because the conditions varied so much. No two cases were alike.

"Nevertheless, it might be said that one distinct maxim bearing on the use of this instrument did exist, and was always acted on, during the greater part of the period of which we write; it was this, in doubtful cases, where their application was easy, the error was on the right side to complete delivery by their aid."

If symptoms of inflammation supervened, it was considered too late to apply the forceps; at the same time it was believed that any sloughing of the soft parts which might follow was rather owing to the long-continued pressure of the head than to the instrument.

"If inertia occurred in the second stage of labor, the head having entered the brim of the pelvis, and should common measures have failed to excite the uterus to more efficient contraction, ergot of rye was had recourse to. Previously, however, to its exhibition, the state of the foetal circulation was investigated by means of careful auscultation."

During the intervals of the ergotic pains, the action of the foetal heart was carefully observed, and if found to fail, the forceps were at once applied. Some cases were met where the head of the child was preternaturally developed and highly ossified, causing disproportion, and if the pressure on the passages were long continued, not a little danger.

"In such cases the presentation felt abnormally hard and unyielding, and to the experienced touch also conveyed a sensation of preternatural size. When the secondary scalp-tumor, which soon formed in these cases, did not preclude the investigation, the bones of the sutures were found to be scarcely at all overlapped, the posterior fontanelle imperceptible, and the anterior, when within reach, very small; while at the same time the finger could with difficulty, if at all, be made to insinuate itself between the presentation and the pelvis. That peculiar olive-colored discharge, having a disagreeable odor, was found always present, more or less, in these cases."

Under the circumstances above enumerated, should symptoms of impending rupture have shown themselves, the forceps were at once attempted. Or should the pulse have risen above 100, and the tongue have become dry, these signs alone were considered sufficient to demand interference, and the progress of the head became a matter of no account.

The general deformities which sometimes admitted of the forceps were slight degrees of the ovate pelvis, but more frequently that description of

pelvis termed masculine, a variety, we believe, first pointed out by Murphy as a cause of difficult labor. This pelvis had nearly always combined with it unyielding soft parts from great muscularity and a foetal head in a preternaturally advanced state of ossification. In these operations, as a general rule, the forceps were used while the patient was in a complete anaesthesia from chloroform: sometimes it was deemed advisable to dispense with that agent; but any attempt to put them on while the woman was but partially under the influence of the drug was difficult and dangerous.

"It was by no means considered necessary to feel an ear before the forceps were resorted to; indeed, it was seldom ever sought for, unless to assist in determining the position. It frequently could not have been reached, even when searched for, since this instrument was very often used when the head was not half-way through the pelvis; in fact sometimes when it could have been said that the latter had scarcely more than well entered the brim."

"Out of the 13,745 women delivered in the hospital, there were, irrespective of twin cases, 200* whose deliveries were effected by the forceps. Of the children so born, 118 were male, and 82 female: 17 of the former were stillborn, 2 of them having been putrid, and 12 of the latter were born dead. Of the 200 subjects of forceps delivery, 11 died.

Cesarean was had recourse to in pelvic deformities, impaction of the head, cicatrices of the vagina, great rigidity of the soft parts not yielding to treatment, convulsions, and other accidental complications.

"The pelvic abnormalities met with during the seven years may be classified into partial and complete.

"The partial consisted of abnormal approximation of the pillars of the pubic arch, and of the tuberosities of the ischia; preternatural development of one or both ischiatric spines; flattening of the sacrum, the diminution of the arc of its hollow, contortion forward of its lower third, and consolidation of its coccygeal articulation.

"The complete deformities consisted of the masculine pelvis; various degrees of the ovate, or that said to be produced by rachitis; and the oblique pelvis of Naegle.

"Of that species of abnormal pelvis called cordiform, which is said to result from mollities ossium, we had no example during the period of this report.

"In addition to the deformities above enumerated, we may mention the encroachment upon the pelvic space by fibrous growths and exostoses."

As a general rule, "in all cases where the deformity was decided, that is, where the sacro-vertebral angle could be readily reached, the second stage was not suffered to proceed further; if after a shorter period natural pains made no impression upon the presentation; and when, under these circumstances, it had been ascertained that the woman had been previously delivered by means of the crotchet, craniotomy was resorted to as soon as possible.

"On the other hand, should the diminution not have been so appreciable, and the head, having entered the pelvis, become more or less impacted, so as to demand interference of some kind, the practice was, to try whether the forceps could be introduced; and if the attempt to adjust them, in every position, failed, the operation of lessening the head was undertaken without hesitation. The same course was adopted, attempts at extraction having proved unsuccessful, after they had been adjusted."

There were 130 cases of craniotomy; 104 mothers recovered, 26 died; about 1 in 5 cases.

The practice of Dr. Shekleton, in this hospital, seems quite opposed to that of Dr. Collins, each superintending the hospital for the same period—seven years. Dr. Collins reported the results of 16,654 cases; Dr. Shekleton of 13,748. Notwithstanding this difference in the aggregate, Dr. Shekleton had 577 cases protracted beyond 24 hours, a larger number than Dr. Collins, who had 450. Dr. Shekleton performed 330 operations, Dr. Collins only 100; the former used the forceps 200 times, the latter 24. Dr. Collins allowed 324 women,

* There were 26 forceps cases under the head of twins; and in three instances both children were thus extracted.

more than three-fourths, to be delivered without aid; Dr. Shekleton only 247, less than the half. This remarkable contrast in the practice of the same hospital is interesting, if it can determine those very difficult questions on the use of instruments which have so long been the subject of controversy; but, we confess to some disappointment in this respect, as a careful analysis of both reports present, so far as the safety of mother and child are concerned, very similar results. We find that in Dr. Shekleton's 577 cases 42 mothers died, or about 1 in 13½. In Dr. Collins's 430 cases 44 died, or about 1 in 10. The former lost 208 children, or 1 in about 2½; the latter 148, or 1 in 3. This difference is in favor of Dr. Shekleton's practice, but not so decidedly as to prove its superiority. With regard to subsequent injury to the passages, Dr. Collins's report is rather obscure; there is, however, one case of vesico-vaginal fistula,* and about five of sloughing in the vagina, but two of them died of puerperal fever. Dr. Shekleton gives four cases of vesico-vaginal fistula, and twenty of sloughing in the passages. The fact that erysipelas, the attendant of puerperal fever, frequently appeared in this hospital, renders it difficult to distinguish cases of slough from this poison, and that from pressure, whether of the hand or by instruments.

Plural births occurred in 233 cases, and in the management of them—

"After the birth of the first child the mode of proceeding was considered of great importance. The binder was never adjusted till after the conclusion of the placental change; but during the interval between the births of the first and second child, the uterus was commanded with the hand placed over the fundus, and the abdominal parietes were maintained pressed against that organ by its means. The prime object in treating these cases was, to have as short an interval as possible. A few minutes, therefore, having been permitted to elapse, in order that the patient might recover from the shock of the first delivery, the second membranes were punctured, and the fundus uteri gently rubbed. Generally speaking, uterine action soon set in, and the second child was quickly expelled.

"The uterus sometimes became inert after the birth of the first child, and ordinary measures failed to induce it to resume its contractions; under these circumstances ergot was unhesitatingly exhibited, and if that proved unavailing, the forceps, when the head was within reach, was had recourse to; but if, on the contrary, it was above the brim, version was performed."

There was one case of spontaneous evolution, the delivery being accomplished exactly in the manner described by the late Dr. Douglas, the breech being first completely expelled. One woman gave birth to three; the first weighed 4 lbs., the second 4½, and the third 2½; they were all girls; the first lived only a few minutes, the third died the morning after birth, the second survived to the seventh day.

Prolapse of the funis has been met with in ninety-eight instances. The authors do not doubt that, independent of the preternatural length of the cord and the position of the placenta in utero, the sudden gush of the liquor amnii was the most frequent cause of prolapse of the funis.

"Most of the various methods of managing the prolapsed funis, as laid down by authors—such as returning it with the hand and hooking it upon some part of the fetus in utero; pushing it upwards with nooses attached to catheters, sounds, &c.; enclosing it in a bag and passing it beyond the presentation by means of sponge-tents—were never had recourse to."

When this accident was recognized, the patient was kept in the horizontal position, and not permitted to exert herself, in order that the os uteri might become sufficiently extended previous to the rupture of the membranes so as to admit of turning the child.

"Should this accident have occurred with the discharge of the waters at the very commencement of the second stage, the head having been still above or only just at the brim, version was at once performed; but when the head had descended into the pelvis, or when the coil was first perceived after the presentation had entered the cavity, then there were two indications of treatment,

* Delivered by crotchet after eight hours' labor. Collins, p. 338.

either to sustain the cord with the fingers above the sphere of pressure, or to deliver with the forceps.

"When the funis was pulsating strongly at this particular stage of labor, elevation of the cord was first had recourse to, and if it failed, the forceps were attempted; but if, on the contrary, the pulsations were feeble, or had just ceased when the state of the case was discovered, no time was lost in their application.

"The mode of sustaining the cord above the point of pressure with the fingers has been frequently described; however, we may here state, that it was first drawn over to that region of the pelvis which afforded the greatest command over it, viz., towards the symphysis pubis. In this situation the fingers could, on account of the shallowness of the pelvis, reach above the brim. The cord was then pushed upwards, knuckle after knuckle, till the entire was in the desired position, using one finger after the other, and sustaining it with all four. This manipulation was performed during the interval of a pain, and the support was maintained during uterine action, in the hope that the head would, after passing lower into the pelvis, fill the space sufficiently to prevent the funis from again descending.

"This operation, if it may be so termed, frequently ended in failure; but sometimes was of use, even though unsuccessful, inasmuch as it has been known to ward off a fatal event to the fetus till such time as the head could be seized in the forceps."

Two rules always served to guide the treatment of these cases: 1st, The hand once in the cavity of the uterus, it was as well to complete the delivery by version. 2d, Always to stand by with the forceps and use them as soon as practicable. A table is given from which it appears "that prolapse of the funis occurred in 98 cases, of which 31 were primiparae; and 4 instances of this accident happened in twins, 1 of which was a primipara. Of the gross number of children given birth to, 44 were born alive, and 2 of the dead-born were also putrid. There were 68 of the children male; 34 of them born alive, and 1 of the dead boys was also putrid. Of the 32 females, 10 were born alive, and 1 of the dead girls was putrid. Of the 32 still-born male children, in 11 instances the funis was pulseless on admission; and of the 22 still-born females, with 10 the pulsation of the funis was extinct on admission. In 79 cases the child presented with the head, in 5 with the upper extremity, and 14 with the breech, or lower extremities."

Accidental hemorrhage occurred in 81 instances; in four of which the mothers died. 27 children were stillborn, 8 being putrid.

"The diagnosis of accidental hemorrhage was always easy, even independent of the previous history of the case: for besides the constant oozing during the interval of the pains, and the immediate arrest of the flow upon their accession, examination readily determined the absence of the placenta from the neighborhood of the os uteri. That peculiar sensation of elasticity conveyed to the touch when the cervix uteri was distended by the liquor amnii, contrasted strongly with the soft, doughy feel, experienced when the placenta was attached to a greater or less extent over its surface.

"The great indication in these cases was to rupture the membranes as soon as possible; and if the os uteri was not sufficiently dilated to admit of this being accomplished with facility, ergot was given, and repeated when necessary, until the orifice had attained a sufficient degree of extension to admit of the introduction of a large-sized, gum-elastic male catheter without the least risk of injury to the uterus or its contents. When the woman entered with the os uteri dilated to a considerable degree, the membranes were ruptured at once with the finger-nail.

"When the bleeding continued after the commencement of the second stage, and the head had entered the pelvic cavity, the forceps were applied as soon as practicable; but if the head had only just entered the brim, or was completely above it, version was performed; and the latter operation was adopted when, during the first stage, delivery was peremptorily demanded.

"The knowledge of the child's death, or imminent danger to the mother's

life, when no other means were available, called for the use of the perforator."

Unavoidable hemorrhage occurred in 24 instances, 8 being complete presentations of the placenta and 16 partial. Of the latter but one mother was lost. Of the former five; but "few cases came into the hospital prior to the commencement of labor, and nearly one-half of those admitted entered either in a state of extreme exhaustion, or quite blanched from previous flooding." This will explain the mortality.

"In the partial variety, as in accidental hemorrhage, the membranes were punctured, and the labor, if possible, permitted to proceed naturally. But if in these cases, the os uteri was not sufficiently dilated to admit of this being done at once, the tampon was introduced, and retained until the necessary expansion was established. This treatment may be said to have been always satisfactory. In the complete variety, where the os uteri was patulous, the tampon was at once introduced, and retained until the os was of sufficient size to admit of the easy introduction of the hand for the purpose of performing the operation of version. In introducing the hand, the fingers, most frequently those of the left, were made to form a cone after they had passed the vulva, and pushed gently and gradually through the os in the direction of its axis, or sometimes one finger after the other, until the whole hand had entered; but in whatever manner introduced, the hand was made to pass at one side of the placenta, after which the membranes were punctured, and the operation proceeded with. Should the feet have been found presenting, they were laid hold of, brought down at one side of the placenta, and, traction having been made on them until the body of the fetus was encircled by the os, the case was then left as much to nature as possible.

"In two cases the placenta was detached completely, in one of which it was removed altogether, and the other side left *in situ*; but this practice (recommended by Professor Simpson) did not get a sufficiently fair trial to admit of any decided opinion being given as to its propriety."

Convulsions are divided into apoplectic and hysterical. The latter being extremely rare during a subsequent labor.

"The women most frequently affected were primiparae, but 14 out of the 63 subjects of this complexity having been previously confined. The general experience as to the rarity of preternatural presentations in these labors was verified; for out of the entire number (63) there were but 6 such, and of this number 3 were in plural births."

In nearly all these cases anasarca and albuminous urine were present to a greater or less degree; nevertheless convulsions sometimes occurred, and those of the most violent forms, when neither anasarca nor albumen could be discovered.

"The treatment during an attack of convulsions consisted in, first, preventing the patient from injuring herself; and the narrow couch upon which all women were delivered, when practicable, afforded great facility for so doing, since the attendants could completely surround and protect her. To prevent the tongue from being lacerated, a gag was made of the handle of an iron spoon thickly padded with lint, which was placed between the teeth.

"As soon as the paroxysm had subsided, blood was taken from the arm very freely, and medicines given to act briskly on the bowels. The favorite purgative was calomel and jalap, formed into a bolus, five grains of the former and ten of the latter. This was not trusted to alone. A strong enema, containing castor-oil, turpentine, and assafetida, was early administered, and repeated if necessary. Should the attacks not have diminished in intensity, the head was shaved, cold applied to the scalp, and occasionally, at the same time, flannels wrung out of hot water were wrapped round the lower extremities. Tartar-emetic solution, opium, and calomel, were also had recourse to. Opium was considered useful after free purging and bleeding. As to the exhibition of chloroform, nothing satisfactory could be said; it was, however, seldom given, and never unless depletion had been previously practised.

"As to the question of delivery, if the head was within reach of the for-

ceps, it was at once seized, and the child extracted; but when the severity of the case demanded it, the perforator was had recourse to without hesitation.

There were 63 deliveries in which convulsions took place, 49 primiparae, 41 multiparae. Of these 24 were delivered by the forceps, 7 by craniotomy, 2 by version, 30 by natural efforts; 13 mothers died, and 25 children.

If ruptured uterus there were 17 instances, and only 1 recovered.

"The symptoms of impending rupture, as laid down in class-books, were not always observed; in one instance the event occurred without any premonitory symptom whatever.

"Vomiting was always considered a suspicious symptom when it set in during the second stage of labor, especially if that stage had been severe or prolonged. When pain, fixed and increased on pressure, was referred to the region over the pubis, during the expulsive stage, that stage having been previously severe or protracted, the indication was to deliver as soon as possible by the means most suited to the particular case. The existence of both the symptoms together rendered the necessity of delivery more urgent.

"The symptoms of the actual occurrence of the accident were more constantly those that were usually observed, but the collapse varied much in degree, and the sensation of 'something having given way' was not always experienced."

All the women, except one, were pluriparae. Under this head is given the details of a very remarkable case (No. 6), in which, in consequence of an immense pelvic tumor, a most difficult but successful effort was made to extract the child by craniotomy; the woman died in ten minutes, of ruptured uterus. There was only one instance of *inversion of the uterus*, which was reduced, the placenta being first detached. The detachment was accomplished without the least difficulty, and was not attended with hemorrhage.

The authors' remarks on *retained placenta* are of practical importance. Generally speaking, the placenta was expelled before a quarter of an hour had elapsed. When, however, a considerable period had passed, after the lapse of half an hour, and the ordinary means failed to expel it, it was considered a case of retention. The rule of sustaining the contraction of the uterus during the expulsion of the child was always observed, and while the pupil was attending to the safety of the child, the care of the uterus was given to the midwife.

"As soon as the attendant had divided the cord, and afforded to the infant all the attention it immediately required, the charge of the uterus, which he had previously committed to the midwife, he resumed; and by the hand then gently grasping the fundus uteri, a pretty correct estimate could be formed of the subsequent efforts of that organ to discharge the placenta, and the probable result of those efforts.

"If the uterus felt spongy and large, friction was made over its fundus, and a napkin wrung out of cold water was applied to the sacrum or hypogastrium, or perhaps to both. This generally succeeded in causing this organ to contract.

"In order to discover if the after-birth had been sufficiently expelled from the uterus to admit of its steady removal, the 'contraction,' as it was called, was again intrusted to the care of the midwife, and the cord having been put on the stretch by the left hand, was made a guide for the first two fingers of the right, which was caused to pass along it, to find, if possible, the point where it joined the placenta. If this were found (unless the placenta was of the butterfly variety), it was considered that it had nearly, if not completely, cleared the uterus, and it was readily removed by hooking the fingers into the rugosities formed by the radiation of the umbilical vessels. Occasionally, though the cord did not lead the fingers to its insertion, yet there was enough of the placenta found without the os to admit of its easy removal.

"Removing the placenta, when partially extruded from the uterus, by means of the fingers of one hand hooked upon its tissue, and at the same time by applying gentle pressure over the fundus uteri with the other, was preferred to pulling at the cord for that purpose, inasmuch as the latter procedure was considered likely to cause irregular contraction, by irritating the fibres of the cervix.

"When the placenta was retained by irregular contraction of the uterus, the irregular form of that organ could be sometimes felt through the abdominal parietes. Frequently, the real nature of the case was not discovered till after the hand had been introduced. The partial contraction might involve one of the angles of the uterus, the fibres of the body, those of the cervix, or those merely round the orifice. It has been known to involve the entire organ, and contract it into the form of a cylinder. It mattered little of what variety the contraction was, so far as regarded the treatment; they all required to be overcome by the hand. That form in which the fibres round the uterus were alone engaged was considered to have arisen from undue traction having been made from the cord; the introduction of the fingers, one after the other, sufficed to overcome it."

With regard to *morbid adhesions*, it was observed that a woman who had been the subject of them at a former confinement was almost certain to be again imperilled by them.

"A suspicion that the placenta was morbidly adherent always arose when a fixed pain, augmented on pressure, had been complained of, over the region of its attachment, during the latter months of gestation."

Before the seventh month of gestation the hand was never passed in utero. At an earlier period, if the fingers could not remove the retained after-birth, the binder was adjusted, and small doses of ergot given. There were only 26 cases of hemorrhage during the third stage of labor, and of these only two died, one of phlebitis, the other of peritonitis. These facts illustrate the value of the practice adopted for its prevention. The hand of the attendant, firmly pressing up the fundus of the uterus, maintained its state of contraction until the placenta was expelled; the hand was not withdrawn, nor the binder applied, until the uterine contraction seemed to be permanent. Those women who had had floodings after delivery in a former labor, were given a dose of the infusion of ergot as soon as the head was pressing. When the child was born, the placenta expelled, and the uterus firmly contracted, the binder was then strongly applied. This generally succeeded; but, if any draining continued, the same practice was resumed.

"In 4 of these cases the bleeding continued after the removal of the placenta; in 16 cases the hand was introduced for its removal; in 10 of these it was morbidly adherent, and in 2 it was retained by irregular contractions."

Hemorrhage soon after the expulsion of the placenta occurred in 33 instances; 2 mothers died; 1 of phlebitis, the other of adherent placenta.

It has been observed "that brisk hemorrhage has been known to have occurred after a delivery during intoxication; and that there was always a tendency to draining with those women who partook of whiskey during labor, just before their admission, even though they did not drink to excess. The habit, we are sorry to say, was very frequent, and would have been doubtless invariably followed by flooding, had not the attendants been always on the alert."

"The relaxation of the uterus, however, which gave rise to hemorrhage soon after complete delivery, was sometimes induced by the retention of a portion of the secundines within its cavity; at other times, a state of inertia supervened upon too rapid delivery. Occasionally there was a predisposition to hemorrhage. And flooding also set in, though rarely, without assignable cause. The treatment pursued in these cases was, at first, similar to that employed when hemorrhage was present during the third stage, viz., the frequently repeated application of nupkins wrung out of cold water to the loins, vulva, and hypogastrium, together with friction over the fundus uteri. In the event of these means proving inefficacious, an enema of cold water was thrown up the rectum, and then a stream of water was sent along the vagina into the uterus, by means of a gum elastic syringe, with a flexible tube, bone nozzle, and vaginal shield. This latter procedure was continued till the water came away from the vulva quite free from tinge, which was the case generally in a little better than a minute, when the uterus was invariably found firmly contracted. Nearly all the cases contained in this chapter were thus treated. After the vagino-uterine injection, the 'contraction' was generally permanent,

and all further danger from hemorrhage over: though cases did occur in which the flooding again took place, and then nothing remained but the introduction of the hand, when, generally speaking, a portion of the secundines were found in utero. The uterus never relaxed after the hand had been introduced, provided it had been perfectly emptied of its contents." There were but 5 cases of secondary hemorrhage.

"In 2 instances the bleeding took place on the fourth day; in 1, on the eighth; in 1, on the ninth; and in 1, so late as the twenty-first day. All these women were naturally delivered; but 1 was tedious, 1 was preternatural, a breech presentation, and the rest were easy and short labors.

"In the tedious case, the hemorrhage set in during the separation of sloughs; and in the preternatural case, it arose from the rupture of a uterine thrombus. Extreme delicacy may have occasioned the discharge in 1 instance, and in 2 it was brought on by mental excitement.

"All the children of these women were born alive save two, viz., that of the tedious case, and the preternatural labor; in which latter the fetus was putrid. The mothers of the two last-mentioned children died."

Some very interesting cases of the induction of premature labor are recorded, illustrating Kiwisch's method of induction by water-douche. The comparative merits of the instrumenta recommended for this purpose were put to the test, and that contrived by Dr. Sinclair, a double-cylinder syringe, was found the most efficient.

Version was performed forty-seven times. The inhalation of chloroform-vapor to complete anaesthesia, previous to attempting this operation, was always adopted. It obviated the necessity of resorting to those agents formerly in vogue for quieting the uterus previous to turning, such as opium, tartar emetic, and venesection. As a rule, it was the favorite practice to bring down one foot, and change the presentation to half a breech; thus, it was presumed, rendering the subsequent steps of the delivery less dangerous to the child.

Puerperal mania occurred in 26 cases; 18 recovered; 6 removed; 3 died, 1 of low fever, 1 of abscess of the brain, 1 of pneumonia.

"It presented itself under two varieties, the one marked by a state of great excitement, with quick pulse and flushed face, the other, and the most frequent form, of a low type.

"In the treatment of these cases restraint was never had recourse to unless absolutely demanded, and was never required save in the first variety of the disease. Careful and constant watching generally sufficed. In no instance was the lancet used after mania had set in; but some cases of convulsion during labor had been bled previous to the attack. With the exception of these, a case of placenta previa, and one of accidental hemorrhage, there was no example of extraordinary loss of blood amongst the women affected.

"The line of treatment pursued in the first variety of mania was to clear the primæ viæ thoroughly, and at once. To effect this, a brisk emetic was given, which was followed soon afterwards by a purgative enema containing assafoetida, and cold was applied to the head. Should the excitement have continued, nausea was kept up till it was lowered, and then a sedative was occasionally given, such as hyoscyamus. In the low form of mania the bowels were cleared out with enemata, mild nourishment was freely given, and the preparations of morphia as freely used."

Exert of rye had been used in 100 cases, and of these 92 children were saved, 9 died in hospital, and 12 were stillborn; the danger to the child, therefore, is not proved, but we must recollect the extreme care with which the fetal heart was watched during its action, and the promptitude of delivery when it was failing.

Chloroform was used with caution.

"The conclusion arrived at was, that its tendency in the greater number of instances, where complete anaesthesia had been induced, was to lessen the effect of, and prolong the intervals between the pains. Subsequently its indiscriminate use was not deemed advisable. In natural labor it was only pressed so far as to lull pain when the woman became impatient, and the uterine action was hacking and inefficient. To the same extent only was it pressed when the

throes were pronounced unbearable, or when there existed an extreme state of nervous irritability. In the generality of the above cases, however, in which it had been previously but partially used when the head began to pass the vulva, almost complete anesthesia was produced."

Complete insensibility was produced in all cases before operation, and in none so beneficially as in those of version. With respect to the utility of chloroform inhalation during puerperal convulsions, nothing was decided, but this remarkable fact deserves attention, that "During seven years not a single accident took place that could be attributed to the use of chloroform." The inhalation was first conducted by means of a cambric handkerchief; afterwards Dr. Fleming's inhaler was used. As in natural labor it was only pressed so far as to lull pain without disturbing consciousness, we are surprised that inhalation by the mouth, as recommended by Dr. Murphy, had not been tried. We know it to be much safer for such a purpose than those methods which promptly induce complete anesthesia. Chloroform was administered to complete anesthesia at various periods during the course of labor to its termination in 313 cases, primiparae 181, pluriparae 113, and 19 twin cases.

Puerperal fever was observed in the hospital during the whole period of seven years, but much more in a sporadic than an epidemic form. "During the years 1848, 1849, 1850, the number of puerperal cases for each year respectively were 43, 29, 15. In 1851, 1852, 1853, 1854, the numbers were 13, 3, 8, 11. Such a control of this frightful scourge can only be attributed to the extreme care with which prophylactic measures were carried out. There were altogether 129 cases, and of these 75 died. The general character of the attack was a slow form of peritonitis, generally speaking requiring nutriment throughout, and, very early in the disease, stimulants. In the beginning the lancet was used, but very soon thrown aside; not so with respect to leeches, and yet these were by no means so often used as might be expected, nor in such large quantities as was once the rule. The medicines chiefly employed were mercury, opium, ipecacuanha, turpentine, the last both internally and externally, sprinkled over flannel or moist spongio-piline and applied to the abdomen."

The general outline given of this work is sufficient to indicate its value in illustrating several important questions in the practice of midwifery. Each subject is accompanied throughout with tables, which will render it of much value in a statistical point of view. The 'Report' is, indeed, a very important addition to those 'Reports' already furnished by the same hospital.

Lectures on the Diseases of Women. By CHARLES WEST, M. D. & F. R. C. P., Physician-Accoucheur to St. Bartholomew's Hospital, &c. Part II. *Diseases of the Ovaries, &c.* 8vo. (London: Churchill, 1858, pp. 257.)

This volume completes the course of which we noticed the first instalment in a previous number (XXIV. p. 232). The subjects treated of are inflammation of the uterine appendages and of the pelvic cellular tissue, uterine hæmorrhoids, inflammation of the ovaries, ovarian tumors and dropsy, and diseases of the bladder, urethra, vagina, and external organs of generation.

Dr. West pays considerable attention to the subject of ovarian tumors, and gives us a fair view of the present state of our knowledge respecting it. In the matter of treatment, however, we do not receive much help. Any attempt to dispel the tumor by preparation of iodide of potassium, &c., is utterly discontinued. Ovariectomy is discarded, and the reasons are as follows:—

"1st. The rate of mortality from the operation does not appear to be in course of diminution, as the result of the accumulated experience and increased dexterity gained by its frequent repetition.

"2d. Unlike most operations in which anything like the same rate of mortality occurs, it is scarcely admissible in the doubtful or desperate cases to which the Hippocratic axiom, "*ad aminus morbos, summa curatio*," applies. The cases in which it may be hoped that the disease, if left alone, will advance tardily or become stationary, those in which something may be anticipated from other less hazardous forms of interference, are the very cases that yield the successes on which it has been sought to establish the merits of

ovariotomy. It is proved to be very hazardous indeed in the young; it is believed by some very competent surgeons to be attended by so much danger in those past the middle period of life, that they have proposed to regard the operation as contra-indicated in all women who have exceeded the age of forty-five years. The compound cysts, the cysts with solid matter, the indurated and quasi-malignant growths—those, in short, whose rate of progress is commonly most rapid, which are the most hardensome to the patient, are attended by the greatest suffering, and admit of the least palliation by other means, are precisely the cases in which the surgeon shrinks most from ovariotomy. In the table drawn up by Mr. Humphry, who himself is an advocate of the operation, cases of this description yielded, when operated on, 19 deaths to 20 recoveries; in my own table, deduced from a larger collection of facts, 56 deaths to 62 recoveries.

"3d. Not only is the operation so hazardous in those very cases where it is really most called for that many surgeons shrink then from its performance, but even in instances that may be selected as the most favorable we have no sure grounds on which to rest our prognosis as to its issue. It is, in short, a venture at hap-hazard, since the medical practitioner is never able, in spite of the large experience already accumulated, to foretell the issue of the operation with the same certainty as guides him in undertaking other serious surgical proceedings. It has, indeed, been seen in numerous instances that extirpation of the ovary, though performed under the most favorable conditions, and by the most skilful hand, and without the occurrence of any untoward accident, has yet ended in a few days, sometimes even in a few hours, in the patient's death."

"These three reasons—the high mortality which experience and dexterity have failed to lessen, the special hazard attendant on those cases where yet the operation is specially indicated, and the utter uncertainty in which we find ourselves, even in the most favorable cases, as to its probable result—have chiefly influenced me in the formation of my opinion as to the general inexpediency of performing ovariotomy."

Tapping is tolerated, but only as a palliative measure. In most of the cases in which Dr. West injected a solution of tincture of iodine into the cyst the march of the disease was retarded, and in 2 cases out of 8 a cure was brought out. This plan, however, though not sufficiently successful, is only available in simple ovarian tumors, and, discarding ovariotomy, we are still left to proceed without any attempt to save life in the largest number of such tumors.

In contesting a statement, Dr. West frankly gives his opponents the advantage of what he may have observed, however much it may militate against his own views. Thus, while taxing Dr. Bennet with exaggerating the frequency of ulceration of the neck of the womb, our author, nevertheless, gives the results of his own statistics, which show ulceration of the neck of the womb to be even more frequent than Dr. Bennet had supposed. In like manner, while affirming subacute inflammation of the ovaries to be a rare affection, he admits the frequency of inflammatory lesions of the ovaries; thus, "in 21 out of 60 instances, in which I examined the uterus and its appendages in the adult, the ovaries themselves, or parts immediately connected with them, presented changes more or less due to inflammatory action;" and at pages 48 and 49 are related conditions of the vesicles, which are admitted to be of "no great rarity, and of an inflammatory nature," besides a case in which droplets of pus were found in an ovary, the stroma being healthy. After establishing the frequency of inflammatory lesions on or about the ovaries, we do not understand how Dr. West can fairly say that subacute inflammation of the ovaries is very rare. This department of pathology is confessedly obscure, and comparatively young practitioners can remember the time when all the pelvic diseases of women were vaguely spoken of as inflammation of the bowels or internal inflammation; and although inflammatory affections of the neck of the womb had attracted great attention, very little notice had been paid to the inflammatory affection of the ovaries before Dr. Tilt brought forward his views in a prominent manner—views which have been confirmed to a great extent by subsequent observation. Thus, Dr. Tilt laid claim to having forcibly exem-

plified "the great importance of ovarian peritonitis as a cause of disordered menstruation," and to have demonstrated not only its possibility, but the frequency of its occurrence. Now, this statement has been confirmed by Dr. Bernatz, who, in two papers, published in the '*Archives G n rales de M decine*' for March and April, 1857, demonstrated by post-mortem examinations that many of the cases described by Thoriat and other French pathologists as instances of inflammation of that scanty amount of cellular tissue covering were, in reality, examples of *pelvic peritonitis*, and that the swelling detected around the womb by the finger depended on a certain amount of pus and false membranes lodged in that portion of the peritoneal cavity which lies adjacent to the womb. Dr. West affirms "that Dr. Bernatz has fallen into the error of stating as a rule what is indeed a somewhat rare exception;" but in making this assertion our author cannot be aware that this distinguished physician of "La Pit " has met with 97 instances of *pelvi-peritonitis* in the course of three years of hospital practice. Many of these cases occurred at the menstrual period, and could be attributed to no other cause than morbidly performed menstruation. Many occurred in the progress of gonorrhoea, and in these the recurrence of the menstrual visus often gave rise to an exacerbation of the *pelvi peritonitis*. Not only does Dr. Bernatz's discovery fully support one of Dr. Tilt's main assertions, but it explains the frequency of peritoneal lesions in the vicinity of the ovary, as found by Dr. West, Dr. Renaud, of Manchester, and many other observers, and also the well-known fact that such lesions are much more frequently met with in the female than in the male pelvis.

Another point mooted in Dr. Tilt's first edition was the frequency of the effusion of blood into the peritoneal cavity at the menstrual epochs. Since this was reported another malady has been discovered, *hematoecole*. This consists in a collection of blood deposited either in the cellular tissue between the f b e of the broad ligaments, or in the peritoneal cavity itself. This complaint, which appears to be far from rare in France, was clearly investigated by Bernatz, N laton, Vignos, and others, and first described in England by Dr. Tilt in his second edition of '*Diseases of Women*.' Dr. West has met with four instances of it. With regard to the symptoms of this disease our author correctly observes:—

"The acute symptoms scarcely ever appear till after the sanguineous discharge has either ceased completely, or has become much diminished in quantity. The symptoms are those of a general febrile disturbance, seldom, however, very severe, accompanied by abdominal pain, and usually by enlargement of the abdomen. Even of their own accord, these febrile symptoms usually subside, and the pain also diminishes; a sense of weight in the pelvis, bearing down, difficult micturition, and still more difficult defecation remaining behind, and leading, by the distress which it occasions, to a vaginal examination, and to the discovery of the pelvic tumor."

Although this complaint has been known to occur independently of menstruation, still it is almost always connected with it, the menses being suppressed or retarded; whereas, in some cases, the effusion of blood in the peritoneum coincides with menorrhagia. There is still some uncertainty respecting the manner in which menstruation produces this complaint. Besides the rupture of varicose veins in the broad ligaments, and hemorrhage from the Fallopian tubes, enumerated by Dr. West, there is another condition considered most frequent by Dr. Tilt, that is, the softening and disruption of the ovarian stroma in an ovulating vesicle, an explanation which has also been submitted to the Acad mie des Sciences by M. Langier. This explanation rests on what has been observed after the patient's death in a certain number of cases, and on the assertions of Pouchot and other physiologists, who have sometimes found the tissues surrounding a vesicle, which had discharged its ovule, so soft that it would break down on the slightest pressure. With regard to the treatment of this singular affection, some open the tumor with a trocar, but it is generally admitted to be best to leave it untouched, and favor the absorption of the blood by such measures as may best support the strength of the patient.

Although we differ with Dr. West on some points, we can strongly recommend his work as embodying the experience of a wise observer in an unusually wide field of observation.

The Abolition of Craniotomy from Obstetric Practice. By Dr. TYLER SMITH, Obstetric Physician to St. Mary's Hospital. ('Medical Times and Gaz.,' 12th Feb. 1859.)

In this paper the author shows that craniotomy is resorted to in British practice about once in every 340 labors. The whole number of births in England and Wales exceeds 600,000 per annum; and if we apply the proportion of 1 in 340 to these figures, we get a total of about 1800 cases of craniotomy per annum. This is as though every year all the children born in London during rather more than one week were sacrificed; or as though all the children produced during the year in such a county as Westmoreland were born dead. The mortality to the mother from this operation is nearly 1 in 5, in British practice, which would give in England and Wales a maternal mortality of between 300 and 400 per annum. Craniotomy is performed about twice as often in British as in French practice, and four times as often in this country as it is in Germany. It is an obvious fact that every improvement which has ever been made in obstetrics has tended to restrict and diminish the cases and conditions in which the performance of craniotomy has been resorted to. It is the author's object to show that, with the proper and scientific use of all the means at our command, it may be laid down as a general rule, that craniotomy should not be performed in the case of a living fœtus after the period of viability has been reached. It is certain that, up to the present time, the measures which are the alternatives of craniotomy have never been carried out in practice to their full and legitimate extent. Turning was the first great obstetric operation which checked the voluntary destruction of the fœtus during labor. The objections to turning which some obstetrists entertain depend on an almost superstitious fear of the uterus—a fear mainly owing to ignorance of the nature of the organ, and of the laws under which it acts. The dread of introducing the hand into the uterus has prevailed almost universally. But, apart from the danger of infection, the hand of the accoucheur, properly guided, can do no more harm in the uterus than any portion of the fœtus of equal bulk. Restrictions of the most absurd kind have been laid upon the operation, and it has come to be almost limited to arm presentations and cases of placenta prævia. On the Continent, turning is the recognized practice in cases of difficulty, where the head is above the brim, beyond the reach of the forceps, when the os uteri is in such a state as to admit the hand, and when no serious distortion of the pelvis exists. The operation of turning in cases of moderate pelvic deformity was practised by Denman, but it was dealt with rather as an exception than a rule of practice, until the matter was taken up by Professor Simpson. No unprejudiced person can read Dr. Simpson's papers on this subject without coming to the conclusion that turning may be performed in cases of moderate pelvic distortion at the full term, with comparative safety to the mother, and with a reasonable chance of safety to the child. It is also shown to be applicable to cases of greater deformity, in combination with the induction of premature delivery. Nothing has ever occurred in the history of turning which has so strongly tended to enlarge its usefulness as the introduction of anesthesia into obstetric practice. Under chloroform we can turn with comparative ease in cases of excessive sensibility of the os uteri and vagina, in arm cases in which the waters have been long expelled, and the uterus has closed upon the fœtus with spasmodic force. It renders turning practicable in cases of convulsions or maniacal excitement, and in all instances it makes the uterus comparatively quiescent, and thus averts the dangers depending on contraction and resistance during the operation. Turning is performed nearly three times as often in France and Germany as it is in this country. After turning, the next great step in opposition to craniotomy was the discovery of the forceps. Before the time of Chamberlain, whenever turning was impracticable, there was no resource in cases of difficulty except

in craniotomy. But it may fairly be questioned whether the whole powers of this instrument have ever been fairly brought out, especially in this, the country in which it was produced. If we examine our standard works, we find more pains taken to show when this instrument is not to be used than when it may be. The cases in which the forceps may be used are those of moderate disproportion or distortion, whether the arrest is at the brim, in the cavity, or at the outlet of the pelvis; cases of arrest from failure of the labor pains, with out any morbid condition of the parturient canal; cases of convulsions in which the os uteri is dilated, and the head sufficiently low to be within reach of the instrument; cases of occipito-posterior presentation, not otherwise admitting of rectification, and face presentations; cases of accidental hemorrhage; and cases of rupture of the uterus, in which no great recession of the head has taken place. It should also be used at a comparatively early period in many of the cases which, if not assisted, run on to impaction from swelling of the fetal head, and tumefaction of the soft parts of the mother. The outlet and middle straits of the pelvis are the limits within which the short forceps should be used; at the brim the long forceps is the proper instrument. The forceps is used more than twice as often in France and Germany as it is in this country. The last, and it may truly be said the greatest, opponent of craniotomy is the induction of premature labor. The largest single source of craniotomy is deformity of the pelvis. Now, it may be asserted, without the possibility of contradiction, that in this great mass of cases it would be right and practicable at once and forever to abolish craniotomy in the case of the living and viable fetus. In all cases of known deformity, an examination should be made in the early or middle months of pregnancy, and the proper treatment of such cases should be the induction of abortion or of premature delivery. In cases of excessive distortion, where it would be altogether impossible for a viable fetus to pass, abortion should be induced before the time of quickening. It would be quite impossible for intercourse and impregnation to take place in any case in which it would not also be possible to induce abortion with safety to the mother. In the very considerable number of cases of moderate distortion in which the diminished capacity impedes delivery at the full term, but would allow of the passage of a child at the seventh or eighth month with the chance of living, the induction of premature labor is the only justifiable practice. Besides the great operations of turning, the forceps, and the induction of premature labor, there are other means by which, in special cases, the necessity for craniotomy may be superseded. One of the most simple is the rectification of occipito-posterior presentations. When the occiput descends towards the sacrum in the third and fourth positions, instead of turning towards the right or left acetabula, great difficulty is produced, particularly in first labors, or when the head is large. Recorded cases of craniotomy show that the want of this rectification, which is generally possible with the hand, the lever, or the forceps, often leads to perforation. Cases of hydrocephalus in the fetus are among the most difficult to deal with in an attempt to abolish craniotomy; but here we have the proposal of Dr. Simpson to tap the hydrocephalic head, and in this way reduce it so as to allow of delivery without the destruction of the fetus. In actual occlusion or insuperable rigidity of the os uteri, incision is a safer and better practice than craniotomy. While it is the object of the present paper to advocate the abolition of craniotomy in the case of the living and viable fetus, there is undoubtedly a class of cases in which perforation may be practised beneficially—namely, in labors when the child has died during the course of parturition. No woman should be allowed to remain in difficult labor after the death of the child has been satisfactorily ascertained. Considering, then, the various means at our disposal in the way of preventing the necessity for craniotomy, the author unhesitatingly expresses his conviction that, as a rule of practice, craniotomy in the case of the living and viable fetus should be abolished; and he believes that if all the resources of obstetrics in the way of prevention, management, and alternative treatment were properly wielded, the necessity for the operation would not arise.

IV.

REPORT ON PHYSIOLOGY.

On the Physiology and Pathology of the Nervous System. By Dr. BROWN-SÉQUARD. ('Lancet,' December 25, 1859.)

The principal points which Dr. Brown-Séquard endeavors to establish in connection with the physiology and pathology of the central nervous system are these:—

1st. Excitations of the anterior roots of the spinal nerves may be a cause of pain because these roots, being motor, produce a *cramp*. The pain due to this cramp is what has been erroneously called *recurring sensibility*. Cramps, and several other kinds of painful spasms (of the uterus during parturition, of the sphincter ani in certain cases, &c.), are painful on account of a galvanic irritation of sensitive nerves accompanying muscular contractions.

2d. Our movements seem to be guided by the peculiar sensations we derive from the galvanic irritation of certain sensitive nerves of muscles, while they contract.

3d. The power of transmitting sensitive impressions exists in many parts which are not able to give pain or any other sensation when they are excited by our usual means of irritation; so it is with the gray matter of the spinal cord and with many parts of nerves, which, however, are conductors of sensitive impressions.

4th. Hyperæsthesia is a constant result of certain injuries upon, or alterations of, the posterior parts of the cerebro-spinal axis, from the tubercula quadrigemina down to the lower end of the spinal cord.

5th. The transmission of sensitive impressions, in the spinal cord, takes place chiefly through the gray matter, and partly through the anterior columns; but, before reaching the gray matter, the impressions, in a certain measure, pass through the posterior columns.

6th. The conductors of sensitive impressions from the trunk and limbs decussate in the spinal cord, and not in the encephalon, as was universally admitted.

7th. Although the spinal cord is greatly altered or injured, sensibility, more or less diminished, may persist everywhere, on account of a peculiar arrangement of the conductors of sensitive impressions.

8th. The various kinds of sensitive impressions seem to be conducted by quite distinct nerve-fibres, in the nerves and in the nervous centres, and the place of passage of some of these conductors in the spinal cord seems not to be the same as that of the others, but none of them go up to the sensorium along the posterior columns.

9th. In the upper part of the cervical region of the spinal cord, near the medulla oblongata, most of the conductors of the orders of the will to muscles are in the lateral columns, and in the gray matter between these and the anterior columns.

10th. The voluntary motor conductors decussate at the lower part of the oblong medulla, and not all along the median line of the base of the encephalon.

11th. The posterior columns of the spinal cord have a great share in reflex movements, and this is the principal cause of the peculiar kind of paralysis often observed in cases of alteration of these columns.

12th. The effects of excitation of the vaso-motor nerves consist essentially in contraction of bloodvessels, which is followed by a diminution in the quantity

of blood, in the temperature, and in the activity of nutrition. The effects of interruption of continuity of the vaso-motor nerves (*i. e.*, their paralysis) consist essentially in a paralytic dilatation of bloodvessels, which is followed by a greater afflux of blood, an increase of temperature, and a greater activity of nutrition.

13th. As a great many vaso-motor nerve-fibres go up to the brain and to the cerebellum along the spinal cord, the medulla oblongata and the pons Varolii, the diseases or injuries of the various parts of the cerebro-spinal axis, besides symptoms concerning sensibility and movement, present symptoms depending upon irritation or paralysis of vaso-motor nerves; contraction or relaxation of bloodvessels, diminution or augmentation in the quantity of blood, increase or diminution of temperature, alterations of nutrition, of secretions, &c.

14th. Besides the influence of the nervous system upon nutrition, absorption, and secretion, through the vaso-motor nerves, there is another, which seems to consist in changes in the elements of the tissues—changes producing various modifications in the quantity of blood attracted, and in the interchange of materials between the blood and the tissues.

15th. The absence of the influence of the nervous system on any part of the body is hardly a cause of other alterations of nutrition than atrophy, while the irritation of the nervous system is a most powerful direct or reflex cause of a great many morbid changes in nutrition, secretion, &c.

16th. The sympathetic normal and morbid changes of nutrition, secretion, &c., are reflex phenomena, the study of which shows how many diseases are produced by a reflex action, and how a rational mode of treatment might be arrived at.

17th. The loss of consciousness in simple vertigo or in complete attacks of epilepsy does not depend upon a disease of the brain, but upon a contraction of the bloodvessels of the cerebral lobes—contraction due to some irritation of the vaso-motor nerves of these vessels, either by some direct cause irritating them in the base of the encephalon or the spinal cord, or by a reflex influence.

18th. Much more frequently than has been imagined, all the following affections may be produced by a peculiar kind of irritation starting from almost any centripetal part of the nervous system: epilepsy, the various forms of insanity, chorea, catalepsy, hysteria, tetanus, hydrophobia, &c.

19th. The medulla oblongata is neither the only nor an essential nervous centre for the respiratory movements.

20th. There are a great many nerve-fibres and nerve-cells in the medulla oblongata, the pons Varolii, and the other parts of the base of the encephalon, which are not employed in the transmission of sensitive impressions or of the orders of the will to muscles, and are endowed with the singular property of producing, after even a slight irritation, a *persistent spasm* in certain muscles, and especially in the neck. Rotatory convulsions very often depend chiefly upon the production of such spasms, and of changes in the bloodvessels of certain parts of the encephalon.

21st. The irritation of the auditory nerve may cause rotatory or simple clonic convulsions.

22d. The conductors of the orders of the will to muscles, of the sensitive impressions, and of the nervous influences to bloodvessels, decussating at different places in the cerebro-spinal axis, various symptoms are to be observed, depending upon either the irritation or the paralysis of these three kinds of conductors, according to the part of a lateral half of the cerebro-spinal axis where an alteration exists.

On the Cause of Death after the removal of the "Point Vital" of the Medulla Oblongata. By Dr. E. BROWN-SÉQUARD. (*Journ. de Physiologie*, No. 2, April, 1868.)

Anatomists are aware that there is a small v-shaped portion of gray substance in the v-shaped space which results from the bifurcation of the medulla oblongata, and that the "point vital" corresponds to the apex of this v-shaped portion of gray substance. It was called point vital, *noeud vital*, or *point premier moteur du mécanisme respiratoire*, because instant death is the conse-

quence of its removal. The theory was, that this point was the centre and stronghold of life—that in it all the life of the animal was accumulated. Dr. Brown-Séquard, however, shows very clearly that M. Flourens has erred in ascribing this importance and this function to this part of the nervous system. He shows that death is not always the immediate result of removing the "point vital." He shows, that when death happens suddenly after this operation, it is due, in part, to the sudden stoppage of the movements of the heart, in consequence of irritation of the medulla oblongata. He shows that the action of the heart and lungs may be arrested or enfeebled, as much by the irritation of the neighboring parts as by the irritation of the "point vital" itself. He shows that the removal of the "point vital" does not suddenly put a stop to the movements of the heart, after the pneumogastric nerves have been divided. He shows that the respiration and circulation may go on effectually and regularly, for several days after the removal of the "point vital;" and that, consequently, this point has no claim to be regarded as the focus in which the pretended vital force has its origin. He shows, also, that voluntary motion and sensation are not destroyed by the removal of the "point vital."

On the Function of the Posterior Fasciculi of the Spinal Marrow.

By Dr. SCHIFF. ('Brit. and For. Med. Rev.,' July, 1858.)

M. Schiff records some important points on which he is at variance with Brown-Séquard. 1. While the latter denies that the white posterior columns convey sensitive impressions to the brain, Schiff is led by his experiments to the inference that the white posterior columns, and these alone, conduct the impressions of touch; while the perception of common sensation—i. e., pain through stronger mechanical, chemical, or thermal agencies, cannot be produced by the posterior column alone. 2. The gray substance conducts the impressions of common sensation—pain caused by strong pressure, burning, vulnoration, &c. The perception of mere touch is not conveyed by the gray substance. 3. After the section of one-half of the spinal marrow, or of both posterior columns, simple touching is not felt any more, but stronger impressions on the respective parts of the body are felt as pain. True hyperæsthesia, as contended by Brown-Séquard, does, therefore, according to these inferences, not exist.

On the Spinal Cord as a Sensational and Volitional Centre. By Mr. G. H. LEWES. ('Brit. Med. Journal,' 9th Oct. 1858.)

The paper of which the following is an abstract, was read at the recent meeting of the British Association, by Professor Owen. Doubts, it appears, have long existed in the mind of Mr. Lewes as to the commonly received opinions regarding the functions of the spinal cord; and he has been led to perform a series of experiments, which, with their results, are embodied in the paper. Against the hypothesis of the brain being the exclusive seat of consciousness, the author has for some years gathered increasing strength of conviction, preferring the hypothesis of the sensorium being co-extensive with the whole of the nervous centres. From the mass of evidence furnished by experiments, all bearing on the same point, the sensational function of the cord acquires in his mind the force almost of a demonstrated truth. A few cases may be selected. Place a child of two or three years old on his back, and tickle his right cheek with a feather, he will first move his head aside, and then, on the tickling being continued, he will raise his right hand, push away the feather, and rub the tickled spot. So long as his right hand remains free, he will never use the left hand when the right cheek is tickled, or vice versa. But if his right hand be held, he will rub with the left. The voluntary character of these actions is indisputable in spite of their uniformity: they are prompted by sensation and determined by volition. The action of the sleeping child, under similar circumstances, is precisely similar. Mr. Lewes tickled the right nostril of a three-year-old boy. He at once raised his right hand to push him away, and then rubbed the place. When the left nostril was tickled he raised the left hand. When the left arm was gently but firmly held down, and the left nostril was tickled, he raised the right hand, and with it rubbed the left nostril, an action

he never performed when the left hand was free. The actions of the sleeping and the waking child are so similar that both must be credited with sensation and volition (and if not both, then neither must be so credited); in like manner the actions of animals before and after decapitation exhibit no more difference as respects sensibility, than the actions of the waking and the sleeping child; so that here again, unless both actions are credited with sensation and volition, neither of them can put in a claim. A water-newt was decapitated; its actions were precisely the same before and after decapitation. After allowing a quarter of an hour to elapse, Mr. Lewes touched the flank with acetic acid. The movements at first were very disorderly. It ran about in great uneasiness, just as it had done before its head was off. It curled itself up, and seemed about to die. Some time afterwards it was again touched with the acid; it again became disorderly, and was then pushed towards the side of the box; but it did not move until pushed slowly forwards so that its flank might come into contact with the wood; it continued crawling slowly and with intervals of rest, its body curved outwards so as to continue in contact with the wood, and its hind leg pressed close to the tail, and thus it rubbed away the acid. There are two points noticeable here: first, the readiness with which a sensation of contact suggested a means of relief; secondly, that this was the only newt which, in the author's experiments, ever hit upon this plan, and this one did so as well without its head as with it. The author divided the cord of a newt between the fifth and sixth cervical vertebrae. The convulsions which followed were almost as severe as those which follow decapitation; but in this case the fore legs were tetanic, and the hind legs pressed close to the body. After a few minutes it tried to rise, but failed. Bubbles of carbonic acid were constantly expired. After fifteen minutes it turned completely round and crawled five steps forward, dragging the hinder segment after it like a leg, the hinder legs not moving at all. This was repeated several times. In fifteen minutes more, sensibility was detected in the hinder segment. Here was a case which would have been pronounced very simple. Division of the cord had seemingly destroyed all power of voluntary movement in the limbs below the section. The hind legs seemed paralyzed. When the anterior segment was irritated, the animal crawled away, dragging the motionless posterior segment after it. When this posterior segment was irritated, the animal did not crawl, but simply withdrew the limb or tail. If the tail or hind leg were touched with acetic acid, the whole of the posterior segment (in which volition was said to be destroyed) began to move, and the legs set up the crawling action, attempting to push the whole body forward, which could not be effected, because the anterior segment was perfectly motionless. The hind legs, which never moved when the anterior segment was irritated, moved now in obedience to the spinal volition, and the anterior segment, which before seemed so energetic in its voluntary movements, was now perfectly unmoved. Each centre ruled its own segment. If the motionlessness of the hind legs when the animal crawled is a proof that voluntary power is destroyed in those legs, the motionlessness of the fore legs when the hind legs moved is equally a proof that voluntary power is destroyed in the fore legs. The real truth seems to be that each segment had its own volitional centre, and that the one is never affected by the other. The author has divided the cord of a newt near the centre of the back. Four days after the operation, the animal had so far recovered that no spectator could distinguish between the voluntary power of its two segments. When the flame of a wax match was brought near the cerebral segment, the fore legs set to work, and the animal crawled away, dragging the hinder segment along. When the flame was brought near the spinal segment, the hind legs worked, and the body moved sideways, the anterior segment remaining perfectly quiescent. All other stimuli produced similar results. The author argues that the explanation here proposed of two independent volitional centres is far more consistent with the phenomena than the explanation offered by the reflex theory. One simple fact proved that the spinal cord is a sensational centre, namely, the fact that whenever sensibility is destroyed all actions cease to be co-ordinated. Every one knows how greatly our muscular sensibility aids us in the performance of actions; but it has apparently been forgotten that if sensibility be destroyed in a

limb, by section of the posterior roots, the power of movement will be retained so long as the anterior roots are intact; but the power of co-ordinated movement will be altogether destroyed. With diminishing sensibility we see diminishing power of co-ordination, the movements become less and less orderly; and with the destruction of sensibility the movements cease to have their co-ordinated harmony. Now in the cases cited it is clear that this power of co-ordinating movements—sometimes very complex movements—is nearly, if not quite, perfect in the decapitated animal; therefore, if co-ordination implies sensibility, the conclusion seems inevitable that the spinal cord is a centre of sensibility. The whole case is summed up thus: 1st. Positive evidence proves that in decapitated animals the actions are truly sensorial. 2d. Positive evidence, on the other hand, shows that in human beings with injured spines the actions are not sensorial, but reflex. 3d. But as the whole science of physiology presupposes that between vertebrate animals there is such a general concordance that whatever is demonstrable of the organs of one animal will be true of similar organs in another—and inasmuch as it is barely conceivable that the spinal cord of a frog, a pigeon, and a rabbit should have a sensorial function, while that of man has none, we must conclude that the seeming contradiction afforded by human pathology admits of reconciliation. Either animals are unconscious machines, or decapitated animals manifest sensibility and will.

On the Perceptive Power of the Spinal Cord. By GEORGE PATON, M.D., of Ont., Canada West. ('North American Medical-Chirurgical Review,' May, 1858.)

What are the phenomena manifested by an animal after removal of the cerebrum? Have we evidence that it is capable of performing distinct perceptive movements?

Experiment 1.—Dr. Paton removed the cerebrum of a frog with great care, and observed the phenomena. Respiration continued. The frog no longer manifested spontaneous motion, but remained in a shallow vessel, amid a little water, with its hind legs drawn up, the posture that frogs assume when they rest; but on being irritated, it moved with great vigor, and gave every indication of recognizing the stimulus. On being seized by the foot, it struggled much to be relieved, and on being freed, bounded from the grasp, and made several leaps before it became quiescent. On irritating the integuments of its left cervical region, it croaked; on repeating the irritation, it again croaked, and scratched the part with its left hind foot. On touching with the point of a needle the integuments over the right scapula, it raised up its right hind leg, and scratched the part with its foot. On continuing the irritation, it again raised up its right hind foot, and pushed away the instrument with force.

Experiment 2.—The cerebrum of a frog was removed with great care, and the animal allowed to remain quiescent till the effects of the operation had subsided. Respiration continued. The frog had lost the power of spontaneous motion, as it did not move from the place on which it was seated till irritated, but it appeared most sensible to the touch, and gave every indication of recognizing a stimulus. When placed upon its back, it immediately turned upon its face, and made several leaps before it became quiescent. When the author irritated slightly the integuments of its thorax on the right side, it pushed away the instrument with its right hind foot. On a stronger irritation being employed, it withdrew its body in the opposite direction, and leaped to a distance. When he compressed slightly one of the toes of its right fore foot, it withdrew its foot, and placed it below its abdomen. When he touched with the point of a needle the integuments of its left dorsal region, it scratched the part with its left hind foot. And when he touched with the point of a needle its right cervical region, it raised up its right hind leg and pushed away the instrument with its foot. In short, it comported itself as regards the sense of touch like an animal that had sustained no mutilation, the only difference being that a slight irritation was required to be employed before the perceptive movements were manifested.

Experiment 3.—Dr. Paton removed the cerebrum of a frog, dividing the medulla oblongata a little anterior to the origin of the par vagum. After the opera-

ration a few slight respirations were observed, which gradually ceased. Dr. Paton touched with the point of a needle the integuments of the right cervical region, and it quickly raised up its right hind leg and scratched the part with its foot. He irritated the integuments of its left dorsal region, and it raised up its left hind leg and pushed away the instrument with its foot, and then leaped to a distance, and made several successive leaps before it became quiescent. On irritating its right dorsal region, it withdrew its body in the opposite direction, and scratched the part with its right hind foot. In short, it gave every indication of recognizing the stimulus, and endeavoring to avoid it.

The author has performed the same experiment on many other frogs with similar results. The animal, after ablation of the cerebrum, losing the power of spontaneous motion, but continuing most susceptible to every irritation, and performing distinct perceptive movements in response to a stimulus. And experiments on the alligator, where the phenomena can be witnessed on a much larger scale, are equally conclusive in establishing the same doctrine.

"A large alligator (four feet long) being decapitated, the headless trunk, as on many former occasions, performed numerous actions, indicative of sensation, intelligence, and volition. Resting perfectly quiet, deprived of all the special senses, it possessed only the general sense of touch, and responded in an accurate manner to all tactile impressions, even the simplest. No extreme agent, neither pricking nor fire, was required to elicit definite and defined movements. The slightest touch with the finger seemed to be perceived by the whole trunk, the tail, and limbs, as perceived by their movements. The animal seemed to be aware of the nature of the touching body, which, if producing little irritation, was borne without any violent efforts to escape from it. But here, punctures, &c., called into agonized action the body, limbs, and tail. The body curved in a manner so as to recede from the offending agent, and the limbs were directed so as to remove it. From its actions, far more impressive than words, it was evident that it judged accurately as to the degree, duration, and place of painful or painless impressions."—*Dr. Dowler on Nervous Action.*

"We perceive from these experiments that an animal is capable of perception and the manifestation of volition, after being deprived of its cerebrum; and that it is not necessary that the impressions received by the nerves should reach the cerebrum that sensations may be produced.

"The animal leaps on being touched, or raises its foot and scratches the part of its integument that is irritated; or, if an alligator, directs its limbs to remove the cause of irritation, and judges most accurately concerning the stimulus to which it is subjected. And to assert that these are not senso-volitional movements, is to give a new definition to the term. There is in these acts—1, an evidence that the animal has perceived the impressions made on the extremities of the sensory nerves; and 2, a proof that it exerts distinct control over the muscles of voluntary motion, in regulating and directing them to the attainment of a specific end. Because if the animal did not feel, and had no power of volition, why should one limb be raised up, in this manner, in preference to every other, to the part that we touch with the needle? Or why should the hind foot be moved forward to the identical spot in the dorsal region that is irritated? Movements perfectly similar to what we observe in other animals, when a particular part of their body is irritated.

"It is no doubt true that the animal has lost the power of spontaneous motion, as it does not move till irritated. And it does not retain the recollection of impressions received by the nerves, as it does not learn to avoid the obstacles to its progress—functions which it is admitted belong to the cerebrum. But, in the absence of these powers, the animal evinces such design, and adaptation of means to ends in resisting every irritation applied to its body, that we must conclude it is capable of distinct perceptive movements.

"From these experiments we deduce the following doctrines:—

"1. That the spinal cord enables an animal to feel, and manifest its perceptions by performing definite and combined movements in response to a stimulus.

"2. That the cerebrum is superimposed on the spinal cord to act on the

possession of these powers, and as the seat of memory and the intellectual faculties.

"3. That the associated movements of deglutition, respiration, sneezing, coughing, contraction of the iris, &c., depend on the principle of reflex action possessed by the spinal cord.

"It will be observed, from the preceding experiments, that our researches have been confined to the functions of the entire spinal cord, and not of a separate section; as our object has been principally to ascertain if the movements performed by an animal after removal of the cerebrum be illustrative or not of the theory of an excitomotor system. And we consider that the phenomena we have described satisfactorily establish the doctrine that cold-blooded animals, after ablation of the cerebrum, are capable of sensation, and of performing distinct perceptive movements, on the application of a stimulus. And this is the proposition for which we contend."

From other experiments and considerations, Dr. Paton supposes the particular seat of this perceptive power to be in the medulla oblongata and upper portion of the spinal cord.

On a Nervous System which suspends the movements of the Small Intestines.

By Dr. E. Pflüger. ('*Journal de Physiologie*,' April, 1858.)

According to Dr. E. Pflüger, the effect of galvanizing a certain portion of the spinal cord, or the grand sympathetic nerves, is to put a stop to the peristaltic movements of the small intestines. On galvanizing one of the grand sympathetics, peristaltic movement is arrested throughout the entire length of the small intestines, and thus the result is analogous to that stoppage of the action of the heart which takes place upon galvanizing the pneumogastric. As in the case of the heart, also, the arrestment of movement is rapidly brought about—rapidly, but after a perceptible interval—and the state of the muscle is one of relaxation. As in the case of the heart, also, the normal contractions begin again a short time after the current has ceased to pass, if this current has not been passed for too long a time. Dr. Pflüger has also ascertained that the peristaltic movements of the small intestines are not arrested by galvanizing the lesser sympathetic nerves, and that the peristaltic movements of the large intestines are not affected by galvanizing either the large or small sympathetics.

These results have been called in question by Dr. Biffi, an able Italian physiologist, but they are confirmed by Dr. Brown-Séquard, who also shows that Dr. Biffi failed to obtain the same results as Dr. Pflüger because he did not take care to limit the action of the galvanic current to the portion of nerve experimented upon.

On the Organs of Vision, their Anatomy and Physiology. By THOS. NUNNELEY, F.R.C.S., Lecturer on Surgery in the Leeds School of Medicine, &c. (Eight plates and 179 woodcuts. 8vo. London, Churchill, 1858, pp. 372.)

Mr. Nunneley's work presents merits of a very high order; it is for the most part carefully digested, and well conceived, and admirably executed; it is also profusely illustrated throughout. An excellent account is given of the structure of the eye; and almost every statement is verified or not, as the case may be, by actual personal observation. The results of years of careful examination of the most delicate structures of the eye are given; and many most interesting, and not a few valuable facts are added to our knowledge; and many good suggestions are thrown out.

The elaborate series of measurements of the globe of the eye, the peculiarly interesting and elaborate accounts of the structure of the retina, and the description of the crystalline lens, may be instanced.

The statements made by Mr. Bowman upon the structure of the cornea are not endorsed by Mr. Nunneley. He is unable to distinguish any anterior elastic layer as a separate structure, nor has he been more successful in discovering the corneal tubes so minutely described by Mr. Bowman.

In the section upon the anatomical structure of the retina, after fully treating of its several layers, he gives the following description of the yellow spot of Semmering:—

"In attempting to solve the problem, I know that I may expose myself to the charge of presumption; but at the risk of this I will mention what I believe to be the correct anatomy of this part of the retina. I give, however, the results of my investigation with great diffidence, and only as what I believe to be correct; but having seen some of the conditions described as the normal living structure actually occur while examining the part, I think I need not hesitate to declare that these at least are post-mortem changes, and not part of the true living texture.

"In cold weather, and in certain bodies, the central dark spot, with the surrounding yellow margin, may be seen as late as thirty-six hours after death, but frequently all trace of it is lost in twenty-four; within this period it may commonly be seen more or less distinctly. It is always more vivid in the young adult than in the old, and better seen on the inner surface of the retina than on the outer; at times the exact appearance represented by Semmering is shown, but more commonly the folds and central elongated depression figured by Dalrymple are found. Not unfrequently there can be no doubt of an actual foramen, almost always if the eye has been placed in spirit, Goadby's solution, or anything that corrugates the retina; but not unfrequently the folds can be pulled out, and the retina be seen continuous between them. Much depends upon the mode and force with which the retina is exposed, but more upon the changes which the retina spontaneously undergoes almost immediately after death, and which in its minute structure, as in a previous paper I have said, may be seen to occur in all animals within a few minutes after removal from the body.

"So soon as the retina begins to be opaque it is evident some alteration in its contents has occurred, besides which the evaporation which ordinarily takes place through the cornea alters the relation of the retina to the other tissues, as may imbibition from the vitreous humor or the fluid the eye is placed in. It is more than probable had Semmering not examined the eyes in which he first found the spot almost immediately the body had been taken out of the water, before evaporation had occurred, his discovery would not have been made.

"The following description is derived from the examination of the eyes of children born both before and at the full term, and either stillborn or such as, having shortly died, I could procure and examine at once, and particularly of the eyes of two adults, which I had removed for cancerous disease of the appendages affecting the fore part of the eye, and to effectually extirpate which the eyeball itself had to be removed; preparation for the examination being made before the operations were commenced, so that the almost living eyes were examined, and where certainly the appearances were such as actually existed during life, the retina being transparent.

"On making a transverse section of the globe behind the lens there is seen a minute dense black spot projecting from the surface of the retina, surrounded by an inner, darker, yellow margin, and an outer, nearly circular one, which gradually shades off into that of the retina. There is neither aperture nor folds, but presently, as the vitreous humor escapes, and the retina loses its support, two folds, exactly as figured by Dalrymple, are seen to form. They may readily be pulled out, but immediately form again, and always in the same place and direction, and of the same size, with the black puncture in the elongated depression between them, so that there must be some structural cause for their formation. That it does not depend, in the adult, as has been suggested, upon the connection of two of the larger branches of the central artery to the retina at these points is certain, for no branches run in the lines of the folds, nor are these retinal vessels so large in man as in many animals where the folds do not occur. They appear rather to result from the fibres of the optic nerve dividing as they pass outwards, and leaving a small space where the puncture is free from the large filaments, so that when the retina loses the support of the vitreous humor and falls into folds, having evaporated through the cornea, these folds form the edges, as it does very soon after the eye has

been opened, and is always seen to do after the eye has become flaccid, by the aqueous humor where the duplication takes place.

"Thus I think it may hesitatingly be said that these plicæ are a post-mortem effect.

"That the appearance of a foramen is equally a post-mortem change, I have no little doubt. An opening is at first sought for in vain, but if the eye be placed in spirit, Goadby's solution, water, or left exposed for a time, an aperture more or less circular, and larger or smaller, will be found in the centre of the yellow spot. The best way of developing this is to remove the sclerotic and choroid coats, and place the eye in Goadby's solution diluted by one-half, which beautifully preserves for some days the macula lutea. Gradually, according to its strength and consequent contracting effect upon the retina, there is a development of the foramen centrale, resulting, as I believe, like the folds, from the absence at this spot of the mass of nerve-fibres, but the presence of the rods, the granular and true retinal elements, which are more acted upon by the solution than the fibres, and being weaker, give way.

"When the folds are pulled out, or before they form, the dark central spot is seen to project as a minute papilla from the inner surface of the retina, and on the posterior surface is a corresponding, but proportionately less, depression. This is an appearance which becomes more distinct after the retina has remained some hours in Goadby's solution, when, an aperture being formed, if a section be viewed in profile it resembles on a microscopic scale the form of a volcano, the aperture being the crater. If the inner surface of the fresh retina be examined with a two or one-inch object glass, there is seen an irregular circle of a canary yellow or pale lemon color, with a dark irregularly circular spot, which breaks up into detached portions, looking like patches of the black matter of the choroid coat upon the inner surface of the retina, which here appears slightly elevated, as though a little thicker than the rest of it, and there is clearly a continuity of the nervous structure over the inner surface of its expanse. With the half-inch glass the same structure is seen, but the yellow tinge now appears to result from the deeper color at the spot of the irregular granular cells, of which the whole inner part of the retina consists, while the dark central part is clearly made up of an aggregation of the minute coloring cells of the choroid coat. The appearance of a distinct spot is, however, much less characteristic under the half-inch lens than it is to the naked eye, for the yellow appearance melts into the surrounding retina, and the dark central foraminal appearance is shown to be a patch of the choroidal coloring globules, on the inner surface of the nervous tissues; hence it is difficult instantly to recognize the exact spot, either by reflected or transmitted light. With the quarter, and still better the one-eighth object-glass, when the part is gently spread out and very carefully and lightly pressed upon with the cover (for the whole retina is too thick without this), the dark spot is resolved into distinct minute choroidal coloring globules, which, as I have stated, when speaking of the choroid coat in thin layers, appear of a yellow or faint lemon color. Thus I believe the yellow color of the puncture results from an intermingling of these minute choroidal particles with the granular cells, rather than a positive yellow color of these cells themselves, as has been asserted, while the central spot is clearly due to a denser, more connected patch of choroidal globules, and which by a little pressure and teasing out may be resolved into the separate globules, lying upon (within) the granular and cerebral cells of the retina, which are as thick and numerous at this spot as in any other part of its expanse. I believe also that the rods are equally continuous on the outer surface, so that the appearance of the punctum centrale and surrounding *humus luteus* depends upon the addition of the minute choroidal coloring globules to the normal retinal elements, diffused more or less in the yellow margin, collected into a mass in the dark central spot. I incline to regard this much debated spot as a vestigial remains of the spot where a large blood-vessel has passed through the retina in the development of the eye, and has carried with it some of the choroidal coloring matter (I forgot to say that in the course of the bloodvessels in the adult retina, the coloring particles are more numerous and more prolonged than in the intermediate places), and which in

after life ceases to exist, the retina being then exclusively supplied with vessels from the central artery of the optic nerve, the direction of the folds of Dalmrymple deriving some explanation from this idea, or it may be an undeveloped analogue of the markupium in birds; but if so, why it should not be generally distributed it would be difficult to say."

Adaptation of the Human Eye to Distances. By Mr. CHARLES ARCHER, Surgeon in the Bengal Army. ('Proc. of the Royal Society,' 1858.)

The following is a summary of the author's views:—

1. The eye is adapted to varying distances principally by an alteration in the fibrous arrangement of the lens itself. Moreover, that when the lens is removed after an operation for cataract, the power of adaptation is nearly lost, and can only be exerted within very confined distances.

2. The purpose of focalizing light at short distances is doubtless assisted, as suggested by Bowman, by the contractions of the ciliary muscle, in its antero-posterior direction, bringing forward the ciliary processes.

3. As the posterior hemisphere of the capsule is firmly united to the hyaloid membrane, this portion must always remain quiescent, and therefore the antero-posterior contractions of the ciliary muscle must be very limited as regards the lens.

4. The ciliary muscle, being placed around the eye, and its fibres being of a somewhat plexiform character, the contractions of the muscle will relax those yielding portions of the eye placed within its circumference.

5. The relaxations of the ciliary processes will deprive the capsule of its firm support. It will be pressed forward by the lens, which will meet with no further resistance to the expansion of its short axis.

6. The lens itself, as microscopically described by Bowman and K lliker, is admirably adapted to the varying changes which take place in the capsule.

7. The posterior capsule being firmly united to the hyaloid membrane, the alteration in the diameters of the cavity of the capsule must take place from the periphery of the lens to its centre, and from behind forwards, but not from before backwards, on account of the close union of the posterior capsule to the hyaloid membrane.

8. To allow such alteration to take place without endangering the achromatism of the lens, the alterations in the plane of its long diameter must be synchronous with the alterations in the plane of its short diameter. To allow of this, the margin of the lens is free in the canal of Petit; were it not the case, chromatic aberration would result.

9. The elasticity of the capsule of the lens and the ciliary muscle are antagonistic; that on the ciliary muscle becoming relaxed, the capsule of the lens is free to exert that elasticity.

10. By the pressure exerted by the anterior hemisphere of the capsule, by means of the polygonal cells of Virchow, on the anterior face of the lens, the organ is able to fulfil all the requirements for adapting it to receive focalized light from long distances.

11. The polygonal cells of Virchow are placed on the posterior surface of the anterior hemisphere of the capsule with the view before mentioned, and they are arranged with their long diameters in an antero-posterior direction, that pressure may not injure their transparency, which would be the case if placed laterally.

12. These cells are not found in other parts of the capsule.

13. The fibres of the lens are serrated for the purpose of uniting either to other, so as to allow them greater freedom of motion without altering their ultimate relations to each other.

14. The ciliary muscle is very highly endowed with nervous matter to supply all these varying requirements.

15. By the above postulates, all the modern discoveries in the microscopical anatomy of the eye receive a distinct expression of their individual functions, and by so doing, adapt the organ of vision to the acknowledged laws of light.

On the possible reappearance of Rigor Mortis after this state has been destroyed by stretching the muscles. By Dr. BROWN-SEQUARD. ('Journal de Physiologie,' April, 1858.)

These experiments were made upon rabbits and dogs. They show, in opposition to the statements of Nysten and Sommer, that fully formed rigor mortis may, within certain limits, return after having been completely destroyed. This is seen in the following experiment:—

Experiment.—A strong, healthy dog was killed by putting a ligature around the trachea. Death happened at 8 A. M., rigor mortis commenced at 11 A. M., and was fully established at 12.30 P. M. At this time one of the hind limbs was alternately flexed and extended until it was rendered perfectly supple. In less than two minutes afterwards the rigidity reappeared, and in less than five minutes the limb was nearly as rigid as the other, which had not been flexed and extended. At 1 P. M. the same limb was again moved until it was perfectly supple, and again the rigidity returned as before, and not less speedily or perfectly. At 3 P. M. the experiment was repeated, and the only difference in the result was that the rigidity was established more slowly and less perfectly. At 3.30 P. M. the rigidity again returned after the limb had been made supple, but in this case it was not until after an interval of ten minutes, and then only imperfectly. On the day following, twenty hours after the commencement of the rigidity, the hinder limb, which had not been experimented upon, was made supple, and in this case the rigidity did not return.

On the connection between Cessation of the Circulation and Peristaltic Movements in the Uterus and Intestines. By Dr. O. SPEIGELBERG, of Göttingen. ('Hanse und Pfeifer's Zeitschr.,' 3 Reihe, ii. pp. 1-44, 1857.)

Experimenting upon a considerable number of rabbits, cats, and guinea pigs, Dr. O. Speigelberg finds that the uterus and intestines remain at rest so long as the circulation is not interfered with; that peristaltic movements begin when the flow of blood is interrupted or arrested; and that these movements pass off when the circulation is restored; and his conclusion is, that this form of muscular contraction is caused by the want of blood in the part. He finds, also, that the uterus and intestines contract more vigorously in animals which have been bled to death; that a cornu uteri which has been separated from its vascular connections contracts more decidedly than the fellow cornu which has not been so separated; and that the contraction is less marked after tying the vena cava or vena porta, than after tying the aorta. From this last fact, Dr. Speigelberg rightly argues, as does Dr. Radcliffe from other considerations (v. 'Epilepsy and other Convulsive Affections,' 2d ed., London, 1858), that this form of muscular contraction must be ascribed, not to the presence of venous blood rendered stimulating by carbonic acid, as does Brown-Sequard, but to the positive want of blood, which is made really stimulating by the presence of oxygen.

Dr. O. Speigelberg, moreover, would explain the occurrence of parturient contractions by local changes in the circulation of the uterus, and not by changes set up in the nervous system—an explanation which he will find to have been anticipated by Dr. Radcliffe in 1850 (v. *op. cit.*), as may be seen by the following quotation:—

"And, certainly, the doctrine of stimulation is not wanted to explain the parturient contractions of the uterus. At the time of labor this organ returns from the state of progressive expansion in which it had been during the period of pregnancy; and as one cause of the previous state of expansion would seem to be found in the increasing vital activity of the fetus, so now one cause of the return from this state would seem to be found in the failure of this activity—a failure brought about, first in the mother, and afterwards in the fetus, in consequence of the growth of the fetus having then passed the limit beyond which it cannot pass without trenching upon the supplies necessary for the proper nourishment of the mother. It would seem, also, that this return of the uterus from the expanded state, or, in other words, this contraction of the uterine walls, must compress the vessels going to the placenta—that the vital activity of the

fetus must suffer a corresponding depression from this interference with the sufficiency of the placental respiration—and that this depression must again lead to contraction in the uterus—for if this organ contracted in the first instance in consequence of a depression of this kind, there is no reason why it should not do so again. And, further, it would seem that this second contraction must lead to a third, and the third to a fourth; and that thus, the uterus acting upon the fetus, and the fetus reacting upon the uterus, contraction must follow contraction, until the completion of birth. Nor does it follow from this hypothesis that the uterine contraction should be unintermitting, for it is quite possible (this among other reasons) that the blood which is displaced from the uterus during contraction may temporarily 'stimulate' the system of the mother to a degree which is inconsistent with an unintermitting continuance of contraction in any of the muscles belonging to the involuntary system. At any rate, it is quite impossible, upon any rational view of parturition, to refer the contraction of the uterus to any 'stimulation' on the part of the fetus, without ignoring the whole of the previous history of pregnancy."

Experiments on the Phenomena of Respiration. By Dr. EDWARD SMITH, Assistant Physician to the Hospital for Consumption at Brompton. ('Proc. of the Royal Society,' 20th Jan., 1859.)

In this paper the author describes the quantity of carbonic acid expired and of air inspired, with the rate of respiration and pulsation in reference to the whole day and night, the variations of the day with and without food, and the variations from day to day, and from season to season. The total quantity of carbonic acid expired in the twenty-four hours was determined in four gentlemen in eight experiments, some of which were continued for eighteen hours, with short intervals for meals only; and others were made at the beginning of each hour and half hour during that period. The quantity of carbonic acid exhaled in the six hours of the night is 1950 grains, and the total amount of carbon exhaled in twenty-four hours at rest varied from 5.16 to 7.144 ounces in the different persons. The effect of walking at two and three miles per hour is found to be equal to $1\frac{1}{2}$ and $2\frac{1}{2}$ times that during rest; and by making a computation of the amount of exertion made by different classes of the community, the author finds that in the non-laborious class the carbon was increased from 7.144 ounces when at rest, to 8.68 ounces, and in the laborious class to 12.19 ounces daily. During profound sleep the amount of carbonic acid is lessened to the extent of half of that of the average of the day. The variations of the day with food are so great that the maximum is one-half more than the minimum, and in one gentleman it was nearly double the minimum, the greatest occurring after each meal, but particularly after breakfast and tea, and the least immediately before the meals. During a fast of twenty-seven hours the minimum quantity was maintained almost without change during the whole period of wakefulness, but there was a rise at the periods when the quantity usually rose with food. The quantity of carbon evolved in twenty-four hours without food is 5.923 ounces instead of 7.144 ounces with food—a quantity equal to that contained in 20 ounces of bread. The blood and the secretions become unusually alkaline. The variations from day to day were due to temperature and the state of the system. Sudden increase of temperature caused a sudden decrease in the respiratory changes, which continued until the temperature rose. This was an ever-acting cause of variation, but was the greatest after the cold of the winter. The state of the system caused by changes in the proportion of waste and supply, varies the quantity of carbonic acid evolved on the following morning. A good night's rest, a feeling of health, good supply of food, and not too much exertion, give an increase on the following morning (hence there was usually a high state of system on the Monday), and the reverse under the contrary conditions. As these conditions vary from day to day, the amount of carbonic acid evolved varies every day. The variations which are due to season are very remarkable and important, since it was shown that the respiratory changes vary from season to season in a definite and periodic manner, and so that the greatest changes occurred in

the cold season, and the least in the hot season, and with definite periods at which this variation begins.

Dr. Smith also shows the amount of carbonic acid evolved with the exertion of the treadwheel.

Experiments on the Action of Food upon the Respiration. By Dr. EDWARD SMITH.
(‘Proc. of Royal Society,’ 10th Feb. 1859.)

The method adopted by the author in these researches is—1st, To take the food under examination apart from the influence of other food, and, therefore, before any meal had been taken. 2d. To take about the quantity usually taken by mankind. 3d. To ascertain the amount of carbonic acid expired and of air inspired, with the rate of respiration and pulsation in a state of perfect rest, and in the sitting posture immediately before the food for examination was taken, and to compare all results obtained during the action of the food with this basis quantity. 4th. To make an inquiry in from three to ten minutes after taking the food, and to repeat it every twelve or fifteen minutes, until the maximum influence was obtained; the conditions as to posture and quietude remaining unbroken. It is found, from the hourly variations of these phenomena of respiration, that such an inquiry could not be made correctly between the meals, on account of the incessant variations then occurring from the meals (a source of error in the results obtained by Boeker and other observers); nor in the evening, since, at that period, all the phenomena declined; and that only in the morning before breakfast, and before the usual breakfast hour, could trustworthy results be obtained. It is found, also, that the influence of food is evident soon after its introduction into the system, and attains its maximum within about two hours. The persons experimented upon were chiefly the author himself and Mr. Moul; but Dr. Frankland, Mr. Hoffman, of Margate, and Mr. Reid, of Canterbury, had also submitted themselves to the inquiry. The substances investigated were very numerous, and the experiments exceeded two thousand. The following is a list of the foods described in this communication: 1. Starch series—arrowroot, arrowroot and butter, arrowroot and sugar, commercial starch, wheat starch, gluten, bread, oatmeal, rice, rice and butter, potatoes and gum. 2. Fats—butter, olive oil, cod-liver oil. 3. Sugars—cane sugar, grape and milk sugars, cane sugar with acids and alkalies. 4. The milk series (cow's)—new milk, skimmed milk, casein, casein and lactic acid, lactic acid, cream, sugar of milk and lactic acid. 5. Alcohols—spirits of wine, brandy, whiskey, gin, rum, sherry and port wine, stout, ale. 6. The tea series—tea, green and black; hot and cold, in different quantities, and with acids and alkalies; coffee; coffee leaves, chicory and cocoa. 7. Other nitrogenous substances—gelatin, albumen, fibrin, almond emulsion. It is impossible to give an abstract of all the results obtained, although the author, in this communication, limits himself entirely to a statement of facts, leaving all theories and practical application of the facts for another occasion; but the following are a few of the principal results: 1. Pure starch and fats do not increase the quantity of carbonic acid evolved; but, on the contrary, the latter somewhat lessens it. 2. These substances are either not found alone in nature, or they are not used alone as food, but are associated with other substances which tend to call them into action, and which constitute a class which the author has termed “respiratory excitants.” 3. The cereals, viz., wheat flour, oatmeal, and rice, containing besides starch, albuminous products, gluten and sugar, have a great and enduring power in increasing the production of carbonic acid—an increase equal to, or exceeding, two grains per minute, and continuing upwards of two hours. 4. Milk, in its natural combination, and in each of its elements, excites the respiration to an extent, from new milk, of nearly two grains of carbonic acid per minute. Lactic acid had the least influence, and then cream; but cream had more influence than butter. No artificial combination of the elements of milk produced the effect of the natural milk. Milk produces its effects in different degrees in those who like and who do not like it. 5. Sugars are most rapid and powerful respiratory excitants, so that 1½ oz. of cane sugar gave an increase of about two grains of carbonic

acid per minute, in less than half an hour. The addition of acid usually increased the maximum, while that of alkalis increased the duration of its influence. Milk sugar had less influence than cane sugar, and grape sugar less than either; but the latter still produced an increase of more than one grain of carbonic acid per minute. Thus of the hydro-carbons sugar must be classed apart from starch and fat. 6. Tea and coffee are powerful respiratory excitants, producing an increase of from 1½ to 3 grains of carbonic acid per minute, and an effect which endured upwards of one hour. Acid, added to tea, made it more stimulating; and alkalis rendered it more soothing; but a fixed alkali destroyed its influence. Chicory and cocoa have a similar but less powerful action; while coffee-leaves caused a diminution in the exhalation of carbonic acid of 1 grain per minute. 7. Alcohols differ in effect both in the different members of the class, and in different specimens of the same kind. Alcohol always increased the evolution of carbonic acid to the extent of less than 1 grain per minute. Rum, also, commonly had the same result, and good malt liquors produced an increase sometimes exceeding 1 grain per minute, and enduring more than two hours. Sherry wine commonly gave a small and sustained increase. Brandy and gin, and particularly the latter, lessened the quantity of carbonic acid evolved, while whiskey varied with the different specimens. The inhalation of the volatile elements of alcohol, and spirits and wine, caused a diminution in the quantity of carbonic acid, and an increase in the vapor exhaled by the lungs. These various members of this heterogeneous class differ greatly in the amount of alcohol which they contain, as well as in their other elements, as sugar, gluten, acids, salts, and volatile oils, and ethers, and, in the author's opinion, should not be classed together. 8. Gelatin, albumen, and fibrin also increase the production of carbonic acid to a maximum quantity less than 1 grain per minute. 9. Thus nearly all nitrogenous foods are "respiratory excitants." 10. Foods may be thus classed in reference to this latter quality: Non-excitants—starch, fat, some alcohols, coffee-leaves. Excitants—sugar, milk, cereals, potato, gluten, casein, gelatin, fibrin, albumen, tea, coffee, cocoa, chicory, alcohol, rum, ales, and some wines. As above stated, the author does not discuss the mode in which they produce these effects, but he adduces several facts which may aid in forming an opinion upon the subject. The author also states that wherever there was an increase in the quantity of carbonic acid evolved, there was also an increase in the quantity of air inspired; but that these were not due to increased rate, but to increased depth of respiration. He also finds that the same food produced effects differing in degree in different persons, and in the same person at different periods, and that such was also the case with the action of acids and alkalis upon the human system.

On the Influence of the Vagus upon Respiration. By Dr. WILLIAM GILCHRIST.
(*Med.-Chir. Review*, Oct. 1858.)

Experimenting with large and powerful induction-apparatus upon thirteen rabbits in succession, Dr. Gilchrist arrives at the following conclusions:—

"1st. That expiration is *not* the normal and constant result of a strong irritation of the vagus, as stated by Eckhard, Budge, and others; but that if it occurs, it is dependent upon some complication in the experiment.

"2d. That expiration is not produced by *very strong* currents, as stated by Autert and Tschischwitz. With the powerful induction-apparatus, which I was enabled to use through the kindness of Prof. Du Bois-Reymond, I employed currents varying from the most feeble to such a strength as has perhaps never been used in this experiment, and on no occasion have I found expiration as a result. I do not, however, mean to deny that expiration does occur sometimes in this experiment, but I have convinced myself that its cause is not the intensity of the current, since with the strongest, as with much weaker currents, I have always seen the same result. Moreover, besides this positive evidence against this view, I may add a fact of a negative kind, viz., that on one occasion Kolliker found expiration produced in a dog by a very weak current.

"3d. *That the constant and normal result of irritation of the vagi is inspiration.* In thirteen experiments, in which the nerves were prepared with the utmost care, this effect was most constantly observed by myself and others. In some animals inspiration was produced by a current of weaker intensity than what was required to produce the same in others; but I cannot say I have obtained any data to lead me to suppose that a connection exists between the intensity of the current and that of the contraction, since with the strongest current the contraction has not appeared to be different from that produced by a weaker. With one nerve only the results were essentially the same. One fact to be noted regarding the contraction is that frequently—indeed, generally—it remains for a considerable number of seconds after the irritation has been suspended, and then one sees the diaphragm relaxing quite gradually, and as it were by stages; and then follows very frequently a tumultuous kind of respiration, in which the expirations are particularly deep. In one instance I opened the trachea so as to get a view of the glottis. Its motions were distinctly seen, and on observing it while a current was applied to the nerves, it was observed to close after the irritation had occurred, and to remain so for several seconds. This observation I repeated (in the same experiment) several times. This closure of the glottis must no doubt have some influence on the duration of the inspiration, inasmuch as if the glottis remained spasmodically closed, the diaphragm must remain in a flattened and contracted-like condition, even although the state of tetanic contractions produced by the current had ceased.

"Although I feel from these trials quite convinced that the general and normal result of the irritation of the vagi is an inspiratory action, I would have wished to be able to give facts proving the cause to which the expiration found by other observers was due. This, however, I have not been able to do, and although it would be possible to frame hypotheses for the explanation of such an occurrence, I forbear doing so, having no substantial facts on which to found an opinion."

On Facts which seem to show that many kilogrammes of Fibrine are formed and transformed every day in the Human Body. By Dr. BROWN-SÉQUARD. ('*Journal de Physiologie*,' April, 1858.)

Judging by the quantity of the secretions, the transformation of organic matter in the animal economy must be very considerable. This is well shown in the admirable researches of Bidder and Schmidt. Thus, for example, in six hours the quantity of gastric juice secreted by a dog is equal to a tenth part of the entire weight of the animal; and for every kilogramme of this weight the quantity of bile secreted is about twenty grammes. There are facts also which show that fibrine disappears from the blood which traverses the liver and kidney; and these are the facts which are taken as the basis of this memoir. The calculations into which Dr. Brown-Séquad enters are somewhat elaborate; and the conclusion to which they lead is, that every day from four to five kilogrammes of fibrine disappear from the blood which passes through the liver and kidney—a conclusion which shows that the same quantity of fibrine must have been formed somewhere (in the capillaries of many organs, in the limbs, in some other parts, and especially in the muscles, during the same time, for under ordinary circumstances the quantity of fibrine in arterial blood, and in the blood of the superficial veins, remains the same. A kilogramme is 2204 lbs. avoirdupois.

On the Acid Principle of the Gastric Juice. By M. BLONDIOT. ('*Journal de Physiologie*,' April, 1858.)

M. Blondiot's analysis of gastric juice is:—

Water	96.71
Biphosphate of lime	0.60 = calcium 0.12
Chloride of calcium	0.32 = calcium 0.11
Chloride of sodium	0.16
Hydrochlorate of ammonia	0.36
Loss	0.05

One of the considerations which arrests the attention of Mr. Blondlot in this analysis is, that the calcareous salts are in such proportions that the amount of base is nearly the same in each—a fact which seems to show that both salts have originated in the reaction of hydrochloric acid upon neutral phosphate of lime. Now, hydrochloric acid can no more exist in a free state in the blood, which is alkaline, than can biphosphate of lime; but it exists in considerable quantity in combination with soda. Indeed, the hydrated chloride of sodium is of all others the salt which is most abundantly met with in the animal economy. Hence, it is probable that the salt is decomposed in the coats of the stomach; that hydrochloric acid, arising out of the decomposition, finding itself in a nascent state in the presence of neutral phosphate of lime (the existence of which in the blood—probably in a state of suspension—is unquestionable), determines the formation of the two calcareous salts which are met with in the gastric juices; and that the soda which remains in the blood furnishes the alkali which is necessary for certain secretions, saliva, bile, &c.

In this way of looking at the matter, we have another proof that the acid principle of the gastric juice is almost exclusively the biphosphate of lime.

On an imperfectly known function of the Pancreas, namely, the Digestion of Azotized Food. By Dr. LUCIAN CORVISART. (8vo, Paris, 'Victor Masson,' pp. 123, 1857-1858.)

Very little is known about the manner in which animal or nitrogenized food is digested in the bowel; and science has not advanced one step since the discovery of Parkinje and Pappenheim in 1836 respecting the solvent power of pancreatic juice upon such food—a discovery which has attracted very little attention.

The physiological and experimental investigations on intestinal digestion which are contained in this essay are of considerable importance. They justify, as it seems, certain *physiological propositions* and certain *pathological deductions*, which propositions and deductions are as follows:—

I. *Physiological Propositions.*

1. Nitrogenized food is digested both by the stomach and the pancreas.
2. The pancreas is, as it were, a supplementary organ, whose action, after copious meals, is added to that of the stomach.
3. Both digestions are of the same nature, as any article of food subjected to either is transformed into the self-same nutritive product (albuminose or peptone).
4. The pancreatic juice has peculiar reactions under the influence of heat, or certain agents, which reactions the gastric juice does not present. As this difference in the juices is found when they are both charged with peptones after digestion, it has been erroneously supposed that the peptones also differed.
5. When an article of nitrogenous food, or a portion of it, has undergone a thorough gastric digestion, the pancreatic juice no longer acts upon it, and does not transform it into another peptone.
6. The pancreatic juice is intended to act upon that part of albuminoid substances which has left the stomach before being transformed into albumin.
7. The amount of action of the pancreas may, in certain cases, be equal to that of the stomach.
8. If the mere quantity of secreted fluid were alone taken into account, the stomach might be looked upon as the more powerful, for the gastric juice is ten times more abundant than the pancreatic juice, but the latter is, to make up the difference, ten times richer in ferment (pancreatine).
9. The gastric juice has the advantage of a prolonged contact and stirring with the food; but the pancreatic juice has, on the other hand, the faculty of acting upon azotized aliments equally well, either in an alkaline, neutral, or acid state; it also acts three times more quickly than the gastric juice.

10. Everything is so disposed in the duodenum, that the pancreatic juice acts as soon as it comes in contact with the food; and everything is so arranged in the stomach that a large part of the food is transformed into peptone, the remaining part being, at the very least, so prepared, as rapidly to undergo the pancreatic digestion.

11. This preparation, which varies according to the quality and quantity either of the food or the gastric juice, &c., consists sometimes in a simple imbibition, sometimes in a dissection or an extreme division, and sometimes in a solution. Pancreatic digestion, being very rapid, is usefully assisted by this preparation, the stomach acting respecting the pancreas in the same manner as the teeth do respecting gastric digestion.

12. It is, however, to be noticed that the pancreatic juice is able to accomplish, unassisted, the digestion of food which has not been subjected to that gastric preparation or division; in the same way as the gastric juice can digest food without extraneous help. Hence, pieces of albuminoid substances, being directly placed into the intestine in a raw state—that is to say, without any preparation—are perfectly and completely digested, the process being, however, somewhat slow. The pancreatic juice can, by its own unassisted energy, carry on the digestion of nitrogenous food, without requiring the adjunction either of the intestinal juice or the bile, to gain digestive properties. The digestion of azotized food, performed in glass jars over the water-bath by means of the pancreatic juice or isolated pancreatine, goes on in the same manner as in the duodenum.

13. When the gastric and pancreatic juices are separated, and act in succession, each performs its function completely, and the quantity of albuminose produced may thus be doubled.

14. But it is a remarkable fact, that when these two digestive ferments meet in a state of purity, the two digestions are no longer freely carried on. The mixture, far from doubling the produce, may reduce it to naught, for pepsine and pancreatine destroy each other under these non-physiological circumstances.

15. Nature, in the normal state, prevents this conflict by three distinct means—1st, by the pylorus, which separates the two ferments; 2dly, by the very gastric digestion through which pepsine exhausts and abolishes itself in the formation of peptone; 3dly, by the bile, which destroys the activity of the gastric ferment, as has been shown by Pappenheim.

16. Bile does not precipitate the peptone produced by the influence of the stomach so as to destroy digestion and necessitate its being again begun. On the contrary, the bile itself is precipitated by the acid of the gastric juice or of the chyme.

17. The nature of the nitrogenous food has much to do with the quantity of peptone which the two successive digestions can produce for the requirements of the economy. I have thus found in my experiments, that whilst musciline and caseine yielded almost one ounce of perfect peptone, albumen, or gelatinous textures, though given in the same quantity, yielded hardly half an ounce.

18. At the outset, gastric or pancreatic digestion destroys the most characteristic properties of the various albuminoid substances. It liquefies insoluble ones, deprives albumen of its coagulability, and caseine of its property of coagulating by rennet. It also deprives gelatine of its property of turning into jelly, and musciline of being precipitated by chloride of sodium, &c. In short, it transforms all substances into albuminose and peptone.

The different kinds of albuminose, although their individual reactions are much less marked than those of the albuminoid substances whence they are derived, have, nevertheless, distinct characters.

19. The nature of peptones varies as the nitrogenous substances from which they are derived. This variety satisfies the different (plastic?) requirements of the economy.

20. The peptones which are most alike and most difficult to distinguish from each other, are, the albumen-peptone, musciline-peptone, and, strange to say, gelatine-peptone; just as if the articles of food from which these peptones are derived were less different from each other than is generally supposed. Fibrine-

peptone and caseine-peptone are more easily distinguished from each other, and from the substances above named. From the slight differences existing between azotized articles of food, or peptones, there arises a kind of unstable equilibrium, favorable to the work of assimilation performed by the tissues of the body.

21. The generic character of peptones is, that they are always soluble in water, be the latter acid, neutral, or alkaline, which circumstance secures an easy circulation in the organism. Heat does not coagulate peptones, and hardly any of them is precipitated by acetate of lead. Besides, they resist insoluble metallic combinations a great deal better than nitrogenous articles of food.

22. Peptones form a genus, as well defined as the albuminoid genus. It is, however, evident, that by the progress of science, their nature will eventually be more exactly determined than can be done at the present period.

23. Some physiologists persist in the erroneous belief that the stomach merely swells or divides the food without dissolving it. How can they, however, withstand the testimony of the scales, which plainly show that, even where the weight of the food is considerable every albuminoid article of food subjected to the action of the stomach is not merely divided, but dissolved, passes through the filter, and is absorbed by the membranes?

24. Others have maintained that the gastric juice, acting on nitrogenous food, produces only gelatine. They, however, lose sight of the fact, that the characters which place gelatine in a peculiar albuminoid class, have never been discovered in the chyme after a digestion of fibrine, caseine, musculine or albumine, even when the chyme was neutralized; and that, moreover, gelatine itself completely loses its specific characters, in consequence of undergoing digestion in the gastric juice.

25. Others finally, resting on the ancient hypothesis that the albumen of the blood is nothing but the digested matters themselves, maintain that the peptones are reduced to albumen by losing their acidity, viz., by being neutralized. Such an error can hardly exist, except albumen and fibrine be alone taken into account, excluding all other aliments; as an incomplete digestion of the albumen and fibrine may lead to confusion. Crude albumen, in fact, always partly escapes gastric digestion; ill-digested fibrine is transformed into albumen only (caseiform); these two cases excepted, if experiments be made on the produce of concrete and washed albumen, of caseine, of musculine, or gelatine, regularly digested by the stomach, no doubt can any longer be entertained. These gastric peptones never contain any albumen.

26. The peptones either received or produced by the pancreatic juice, do not, any more than the latter, form any new albumen, and, whether they be primarily or consecutively acid, alkaline, or neutral, do not increase by an appreciable weight the coagulable albumen which the pancreatic juice, pure and without peptone, *normally contains*.

27. During the three hours which follow a meal (when digestive solution, transformation, and absorption are not much advanced), the blood of the vena portæ (compared to the venous blood generally) does not become charged with a noticeable quantity of nitrogenous matter through digestive absorption; whilst on the other hand, the elements of the blood, globules and fibrine, become changed into albumen (caseiform) by a commencement of digestion, either in the intestine or the water-bath, under the influence of the alkaline pancreatic juice.

28. Now, if it be considered that, during the first three hours of digestion—1st, the pancreatic juice poured into the duodenum remains therein in a pure and active state; 2d, that this juice can pass into the vena portæ (for absorption by the mesenteric veins is not suspended); 3d, that this same juice can act in such an alkaline medium as the blood; if, moreover, it be considered that during those very three hours, a large portion of the globules and fibrine of the blood of the vena portæ is, weights remaining equal, transformed in that vein into albumen (which is a commencement of transformation similar to that which they would have undergone in the intestine under the influence of this same pancreatic juice), we can hardly refuse our assent to the hypothesis of a *true intra-venous digestion*, which hypothesis the author confidently puts forward.

29. No actually differential character has ever been pointed out between the

nitrogenous matters which go by the name of extractive, and the albuminose which is generated by gastric or pancreatic digestion. Now, it should be noticed that the lacteals, the *vena portæ*, and the *hepatic veins*, which are its continuation, or, in other words, the vessels which most directly receive the product of digestion, are by far richer in extractive matter (albuminose) than the rest of the blood. It may, moreover, be noted that they are also richer in glucose.

30. The nutritive richness of the hepatic vessels (albuminose and glucose being contained in them) may be explained by the gastro-intestinal absorption, to which is energetically added prolonged intra-venous digestion, although the liver has no share in the process.

II. Pathological Deductions.

A. We may take it as almost certain that there exists (as regards albuminoid ailments) a duodenal dyspepsia, caused by the vitiation, insufficiency, or absence of the pancreatic juice, the symptoms of which appear only from the second or third hour of digestion, with a deeper-seated pain than is felt in gastric dyspepsia. (See Propositions 1, 2, 3, 6, 7.) The internal use of pancreatine is indicated* in cases of pancreatic duodenal dyspepsia.

B. Secondary duodenal dyspepsia may be the result of an almost total absence of that kind of division which food, under the least favorable circumstances, undergoes by means of the gastric juice before that food has been transformed into peptone. Pancreatic digestion is then slower, just as gastric digestion is slower when the teeth have not duly performed their functions. This secondary pancreatic dyspepsia may be cured by the treatment suited to the primary gastric dyspepsia.

C. Another secondary duodenal dyspepsia may arise, either from an excess of gastric juice, or from a patency of the pylorus; for in these two individual cases the gastric juice reaches the duodenum in unfortunately retaining all its active properties, which latter are prejudicial to the action of the pancreatic juice. (See Propositions 13, 14, 15, and 16.)

D. A third duodenal dyspepsia may arise from deficient biliary secretion, this deficiency being followed by the same unpleasant effects as are noticed in the two preceding cases, on account of the non-destruction of the activity of the gastric juice in the duodenum.

E. A peculiar kind of dyspepsia, which might be called of the portal vein, or hepatic, may arise from the vitiation of the intravenous digestion.

F. Certain symptoms of dyspepsia, gastralgia, enteralgia, or hepatalgia, may erroneously be attributed to the stomach, the intestine, or the liver; these symptoms may be simply the result of the absorption of the too abundant, too active, or too irritating pancreatic juices by the *vena portæ*.

G. Bile, when it reaches the stomach, destroys the activity of the gastric juice within that organ, whether it penetrates the cavity pathologically through the pylorus, or by the mouth and cardia. The knowledge of this fact may lead to the employment of bile to counteract the morbid superabundance of the gastric juice.

H. The economy is supplied with a variable weight of peptone, though the weight of different kinds of nitrogenous articles of food and digestive force remain the same, the weight of the peptones varying according to the kind of nitrogenous food. It is a great error in hygienics to esteem the trophic, or nourishing power of a nitrogenous article of food, simply by the amount of

* Last year Dr. Corvisart made some clinical experiments on the therapeutic use of pure pancreatine. The difficulties he met with are recorded in the "Gazette Hebdomadaire," of Paris, May, 1867, pp. 321, 322. Dr. G. Harley, who read a paper on Digestion just twelve months after the above date at the meeting of the British Association for the Advancement of Science, seems never to have heard of Dr. Corvisart's article on the subject. Dr. Harley maintains, in opposition to the latter physician's statements, that in the administration of duodenal ferment, it is not necessary to imitate nature, which prevents pancreatine from passing into the stomach. For the causes of the difficulties met with by Dr. Corvisart, and the means to overcome them, see Propositions 13, 14, and 15, paragraphs C and D of the summary, and page 61 of the Essay.

nitrogen it contains. The trophic or alimentary standard of food is not so easily fixed.

I. When it is more urgent to allay pain and irritation about the digestive organs than to restore muscular energy, the food should consist of that kind of aliment which is most quickly and completely dissolved, whatever be the amount of peptone it yields.

J. But when it is more important rapidly to restore muscular force than to allay gastro-intestinal pain, we should, on the contrary, give food which, the digestive force being the same, yields the greatest weight of peptone, though that food be likely to dissolve and digest slowly. (See Proposition 17.)

K. He who digests with one organ only (stomach or pancreas) is thereby put on half allowance as regards peptone; and he who eats only albumen or gelatinous tissue (instead of caseine or musculine, which yield double as much peptone) is also put upon half allowance; and, with a normal and equal digestive force, is only half nourished. (See Proposition 17.)

In the two preceding cases, an over-activity, either of the one organ (first case), or of both organs (second case), may occur, and extract from the food the full allowance of peptone. But we must not long trust this extreme functional exertion; for any persisting over-activity must sooner or later end in exhaustion.

L. We should not give for a long time one kind only of nitrogenous food, not only because one kind of azotized aliment is not capable of repairing the waste of the organism, but also because the same article of food given exclusively and continuously (for a week, for instance) no longer excites gastric secretion, and no longer fully undergoes the digestive transformation.

M. Most of the peptones upon which Dr. Corriear has made experiments, have the peculiarity of not being precipitated by neutral acetate of lead. Now, in all cases where the albuminoid matters of the urine happen to be of the albuminous kind, they remain in solution, in spite of the acetate of lead used to precipitate them. They therefore mask the sugar more effectually than all other ingredients of the urine when the potash and copper test is employed. The presence of sugar may thus be overlooked when it really exists in the urine.

Experiments on Digestion. By Dr. HARLEY. ('British Med. Journal,' 16th Oct., 1868.)

In this communication, Dr. Harley states that, contrary to an opinion lately published by Bernard, he has found that the human saliva contains both sulphocyanide of potassium and iron. The latter substance, however, can only be detected after the organic matters contained in the secretion are destroyed by burning. Dr. Harley has ascertained that a person of nine stone weight secreted between one and two pounds of saliva in twenty-four hours. The gastric juice, the author says, does not destroy the power possessed by the saliva of transforming starch into sugar; consequently, the digestion of amylaceous food is continued in the stomach. The gastric juice has the property of changing cane into grape sugar. The author makes some remarks upon the cause of the gastric juice not digesting the living stomach; and says that his experiments show that it is not the epithelium lining the organ which prevents its being digested, but the layer of thick mucus which covers its walls. When the latter substance is absent, the gastric juice attacks the walls of the living stomach, and digests them, causing perforation and death. As regards the bile, it seems that this secretion takes an active part in rendering the fatty matters of the food capable of being absorbed into the system. The most curious of all the digestive fluids, however, is the pancreatic secretion, for it unites in itself the properties of all the others. It not only transforms starch and other such substances into sugar, but it emulsionizes fats, and even digests protein compounds. As a remedy in indigestion, pancreatine should be greatly superior to pepsine, which can only digest one kind of food, namely, protein. The author says he has been laboring to obtain pancreatine in a perfectly pure state, and has been to a certain degree successful. With pancreatine, we should be able to digest any kind of food we pleased; and

therefore the obtaining it in a state of purity would prove an invaluable boon to suffering humanity.

Experiments on the Transformation of Starch into Glucose in the Stomach. By Dr. F. G. SMITH and Dr. BROWN-SÉQUARD. ('Journal de Physiologie,' Jan. 1858.)

In the 'Philadelphia Medical Examiner' for July and September, 1856, is a memoir (translated, also, in the present number of the 'Journal de Physiologie'), in which Dr. F. G. Smith relates experiments which seem to show that starch may be transformed in the human stomach into glucose without the help of saliva. These experiments were performed in the man (Alexis St. Martin) upon whom Dr. Beaumont experimented some years ago. The conclusion of Dr. Smith, however, has been called in question by Dr. J. Dalton, of New York, who holds that the glucose proceeds from the bread used in these experiments. This led Dr. Brown-Séquard to inquire anew into the matter, and to call in the aid of the power he has of easily ejecting anything from his stomach when he wishes to do so. His experiment was this: At breakfast-time, after fasting fourteen hours, he washed out his stomach by drinking and ejecting three large glasses of water, and then he took a quantity of decoction made from carefully washed arrowroot. This decoction, tested carefully by Trommer's test, gave no evidence of glucose. Half an hour afterwards, a quantity of this decoction was ejected from the stomach, without any effort. This was semi-liquid, viscous, and very acid, and, with Trommer's test, it gave an abundant precipitate of oxide of copper. At different times, during the next hour, other portions of the arrowroot were ejected, and on each occasion the acidity and the quantity of sugar seemed to increase in amount.

A small quantity of the decoction of arrowroot which was not swallowed, was left in contact with a certain proportion of saliva for half an hour, and in this case glucose was found, but in much less quantity than in the decoction which had been ejected from the stomach.

On the Origin of Sugar in the Animal Economy. By M. SANSON, Professor of Chemistry in the Imperial Veterinary School of Toulouse. (Brown-Séquard's 'Journal de Physiologie,' April and July, 1858.)

In March, 1857, M. Claude Bernard read a paper before the Academy of Sciences, in Paris, the object of which was to direct attention to a special substance, to which he gave the name of *matière glycogène*, a substance which, under the influence of ferments, is easily transformed into sugar, and which is produced by the liver. In animals fed exclusively upon flesh, M. Claude Bernard maintains that this *matière glycogène* is produced exclusively in the liver; in herbivorous and omnivorous animals, he maintains that it is formed partly in the liver and partly at the expense of the starchy materials entering into the food. As to the rest, this *matière glycogène* is held to be a substance analogous to starch, and capable, like starch, of becoming transformed into sugar after passing through the intermediate condition of dextrine. At first it was supposed that this sugar-forming process was a vital process—a process inherent in the living liver; but subsequently M. Bernard has ascertained that it is carried on in the liver at a time when this organ may be regarded as dead, and hence it would appear as if, after all, the sugar-forming process were a chemical and not a vital phenomenon. At any rate, this is the inference which may easily be drawn, and which has been drawn by M. Sanson.

The arguments upon which these conclusions were based appeared to be very sound, and in a very short time they were accepted by physiologists on all hands. M. L. Fuguiet, however, raised a dissentient voice, and showed that glucose was to be found in the blood of the general circulation, and that, on that account, glucose must be present in the flesh upon which the animals had been fed whose livers were supposed by M. Claude Bernard to have been solely concerned in producing sugar. This was, of course, an all-important point, for if it could be shown that glucose was supplied in the food, it could not be held

that this substance was exclusively produced by the liver. M. Fuguier, however, did not succeed in making out his case to the satisfaction of the commission which was appointed by the Academy of Sciences to investigate it. Afterwards comes MM. Colin and A. Chauveau, with additional evidence in favor of the existence of sugar, not only in the general circulation, but also in the majority of the animal juices, and especially in the lymph and chyle. Then, next in order, comes M. Sanson, whose first communication was addressed to the Academy of Sciences, in May, 1857, and whose more matured views are contained in the paper which is now before us. The object of M. Sanson is to show that the *matière glycogène* of Professor Bernard is nothing more than dextrine, or a modification of dextrine which, like this substance, is capable of being transformed by diastase into sugar. This dextrine he meets with, not in the liver solely, but in the blood belonging to the general circulation, and in all the parenchymatous organs. In herbivorous animals it is produced by the action of the saliva upon the starchy matters entering into the food; in carnivorous animals it occurs ready formed in the flesh-meat by which they are nourished. In a word, M. Sanson holds that the liver does not in any case create either sugar or *matière glycogène*.

The experiments and arguments of M. Sanson appear to show very satisfactorily the truth of these conclusions, but the commission appointed by the Academy—a commission consisting of MM. Bouley, Poggiali, and Longet—has given a report which shows that much remains to be done before we can consider that the theory of Professor Bernard is completely subverted. Thus, in a great number of experiments performed by the commissioners, and in some by M. Sanson himself before the commissioners, the presence of *glycogène* was detected only once in butchers' meat. In the flesh of horses *glycogène* was invariably present, as M. Sanson represents; but this fact, as the commissioners say, is not sufficient to show that this substance is always supplied in the food.

Under any circumstances, this paper of M. Sanson's is a most important contribution to the physiology of the sugar-forming process, and as such we earnestly commend it to the careful attention of physiologists and pathologists.

An Experimental Inquiry into the alleged Sugar-forming Function of the Liver.
By P. W. Pavy, M. D., Assistant-Physician to Guy's Hospital. ('Guy's Hospital Reports,' 3d series, vol. ii., 1858.)

The question to be discussed in this communication is not whether sugar is to be found in the animal system independently of a saccharine alimentation—for that the author considers to stand upon irrefutable ground—but whether the sugar encountered in the liver *after death* is a natural representation of the condition during life, or only the result of a post-mortem occurrence. As early as February, 1854, Dr. Pavy had noticed that the blood removed by catheterism of the right ventricle during life was almost completely destitute of saccharine impregnation. The observation did not then, however, receive the attention it deserved: but on repeating the experiment at a later period, and meeting with a similar result, an investigation was made, which has led to the conclusions advanced in this communication.

From upwards of sixty observations it is asserted that the condition of the blood after death can no longer be taken as indicating its state during life: for if blood be withdrawn from the right ventricle of the living animal in a natural or tranquil state, there is scarcely an appreciable amount of sugar to be discovered; whilst, if the animal be afterwards sacrificed, and blood collected from a fine incision of the ventricle, it will be found to present a strong indication of the presence of sugar. In one of the experiments quoted there was a barely appreciable reaction in the blood removed during life, and nearly 1 per cent. of sugar in the blood collected after death, the animal having been sacrificed immediately after catheterism had been performed.

Observing this striking contrast in the blood abstracted from the right ventricle *before* and *after* death, the possibility occurred that there might be a corresponding contrast in the organ that was considered to be specially

endowed with a sugar-forming function. The recent researches of Bernard had taught us, that a material naturally existed in the liver, which was extremely susceptible of conversion into sugar. It was this material, in fact, which was looked upon as giving rise to the sugar thought to be largely present in the liver during life. At the outset of the inquiry, an agent was sought for which would check the transformation of the sugar-forming material after death, and thus present the liver in a condition as near as possible to that which existed during life. Potash was found to possess this effect, without destroying the principles concerned. A strong solution of it was then injected, as instantly after death as practicable, through the portal vein, into the liver; and, as the result, the organ presented scarcely any appreciable trace of the presence of sugar. A liver similarly treated when it had been allowed to remain a short period after death, gave the usual strong reaction of sugar that has been hitherto noticed. By injecting only a portion of the organ with the alkali, it was most strikingly susceptible of demonstration, that the presence of sugar is in reality due to a post-mortem occurrence, and can therefore be no longer looked upon as a representation of the natural ante-mortem condition.

The sudden abstraction of heat from the liver instantly after death leads to a similar arrest of the production of sugar, and thus enables us likewise to represent the real condition of the organ belonging to life. In one of the experiments mentioned, where a dog was sacrificed, and a piece of the liver instantly sliced off and thrown into a freezing mixture of ice and salt, the absence of sugar was almost complete; the amount, at least, was so small that it was found impossible to arrive at a quantitative determination with a concentrated spirituous extract, notwithstanding the process is susceptible of so great a delicacy. The portion of the liver which was not submitted to the action of the cold, and which was allowed to remain a short time in the animal, yielded, on analysis, an indication of 29.6 per cent. of sugar.

Division of the spinal cord in the lower part of the cervical region, the effects of which have been noticed by Bernard, but differently interpreted, leads to a corroboration of the deductions drawn from the preceding experiments. When the weather is cold or moderate, the operation is followed by a gradual reduction of temperature; and if the animal be sacrificed when its body has cooled down to about 70°, the liver is found free from sugar, upon an ordinary immediate examination, because at such a degree the *post-mortem* transformation is not effected with sufficient rapidity to lead to our deception; placed aside, however, it soon becomes strongly saccharine. Should the operation of division of the cord be performed, and the temperature of the animal be afterwards maintained at about the ordinary height by exposure to external warmth, then the liver is as strongly saccharine, upon ordinary examination after death, as if the animal had been taken and simply sacrificed.

By cutting the coats of rabbits, and exposing them to cold, the temperature of the body falls, and precisely the same phenomena are noticed as after division of the cord.

With frogs in a vigorous condition, the presence or absence of sugar in the liver submitted to the ordinary process of examination after death, is dependent upon the temperature of the animal at the time of the destruction of life. This fact was independently noticed by myself, about the time that it was mentioned by Bernard in a communication to the Parisian Academy of Sciences. Bernard's interpretation of it is connected with the relative activity of the abdominal circulation; but for myself, I bring it forward as strongly supporting the views that have been advanced, and consider it to be explained by the influence of temperature on the *post-mortem* production of sugar.

The material which occasions the presence of sugar in the dead liver has been called by Bernard "*glycogenic matter*"—a term which, being only specially applicable after death, it is suggested should be abandoned, and replaced by *hepatine*.

The amount of *hepatine* in the liver of the dog is much greater under a vegetable than an animal diet; the amount is also increased by mixing sugar with animal food. From the examples given it is shown likewise that the relative weight of the liver presents a proportionate variation, according to the

quantity of hepatic present. In eleven dogs taken indiscriminately, that had been restricted to an animal diet, the weight of the liver was one-thirtieth that of the animal. The average percentage of hepatic yielded by eight livers, also taken indiscriminately after an animal diet, was 8.97. Five instances have been collected of dogs restricted to a vegetable diet for some days prior to death. The average weight of the liver was one-fifteenth that of the animal. In only three of the examples was the actual amount of hepatic determined, but in the other two it was noticed to be exceedingly large. The average given by the three was 17.23 per cent. Four dogs were placed upon an animal diet, and about a quarter of a pound of ordinary cane-sugar administered daily for a short period. The average weight given by the four livers was one-sixteenth and a half that of the animal, and the average amount of hepatic yielded was 14.5 per cent.

The natural destination of hepatic in the living body remains to be determined. It has also to be shown how it resists transformation into sugar during life, when it is so rapidly changed at an elevated temperature immediately after death. A possible analogy may be presented by the following occurrence: when a solution of hepatic, in a neutral state, is placed in contact with saliva, an almost instantaneous transformation into sugar takes place; but if a little acid alkali or carbonated alkali be added, scarcely a trace of change is for some time discoverable.

Under normal circumstances, rarely an appreciable amount of sugar is to be encountered in the circulatory system—only, according to the author's analyses, from about .047 to .073 of a grain in 100 grains of dehydrated right-ventricular blood; and this would appear to result rather from a simple escape of a small amount of hepatic from the tissue of the liver into the blood, whilst circulating through the capillaries, than from a special functional operation of the organ; for when a disturbance of the circulation, whether by congestion or the opposite, is occasioned, sugar makes its appearance to a considerable extent in the system, because the admixture of hepatic with the blood is favored. It can be easily shown by experiment, that on introducing hepatic into the circulatory system, a saccharine state of the blood is induced; and if enough have been employed, a strongly marked diabetic condition of urine is established.

Sacrificing an animal, and maintaining the circulation by performing artificial respiration, occasions a well-marked diabetes. With the destruction of life, the transformation of hepatic into sugar takes place, and this, being carried away by the blood, is eliminated by the kidneys, and thus renders the urine strongly saccharine.

Many phenomena which were before obscurely explained, receive a lucid interpretation from the new facts which have now been brought to light.

On the Functions of the Malpighian Corpuscles of the Kidney. By Dr. C. E. ISAACS, Demonstrator of Anatomy in the University of New York. ('Trans. of the New York Academy of Med.,' vol i., part 9, 1857.)

The general conclusion at which Dr. Isaacs arrives is, that the Malpighian corpuscles, or rather the glomeruli, are the principal secreting portions of the kidney. This conclusion is founded on numerous experiments, and on repeated microscopic and chemical examinations; and, so far as we can see, the evidence appears to be very satisfactory. At any rate, the memoir is one which must be thoroughly studied by all who would make themselves acquainted with the functions of the kidney.

The minor conclusions are: That several coloring matters are separated from the blood by the Malpighian bodies; that the coloring matter of the bile is thus separated; that lactic acid, in all probability, is thus separated; and that powerful diuretics give rise to a marked degree of congestion in the kidneys.

A Treatise on the Human Skeleton (including the joints). By GEORGE MURRAY HUMPHRY, M. B., Cantab., Surgeon to Addenbrooke's Hospital, Sec. Post Soc., Cambridge, Macmillan & Co., 1859, with 200 illustrations drawn from nature.)

At Mr. Humphry's bidding, our old friends the bones forget their dryness, and are made subservient to many instructive lessons—lessons which are pleasantly told, as well as new and important. Of these the following are some of those which have interested us most, and which will give a good idea of the rest:—

Mr. Humphry's description of the disposition of the fibres of the intervertebral substances and of the movements of the spine differs from that given by the Webers, and copied from them in most anatomical works. He states that the forward and backward movement (flexion and extension) is most free between the 3d and 4th and between the 4th and 5th lumbar vertebrae. Here the lumbar curve is sharpest; the nervous cords are less closely connected with the vertebral canal than elsewhere; the spinous processes are large, and the interspaces between them are free and filled with stout, elastic ligaments, which have a powerful effect in bringing the bones back with a spring when the column has been bent forcibly forwards. Moreover, the projecting pubes and sternum in front, and the projecting sacrum and dorsal curve behind, enable both the flexor and the extensor muscles to act with great power upon this part of the spine. The movement becomes suddenly less above the 3d lumbar vertebra, and further diminishes towards the middle and upper part of the back, where it is very slight. It increases again in the neck, and the capability of motion backwards from the upright posture is, in the neck, greater than that of the motion forwards, whereas the reverse is the case in the loins.

Lateral inclinations, or flexion to either side, is permitted at every part of the column, but is most free in the neck and between these lumbar vertebrae where there is the greatest range of antero-posterior motion.

Rotatory motion is slight in the neck; more free in the upper part of the back. It decreases towards the lower part of the back, and quite ceases between the 10th and 11th dorsal vertebrae—no rotation being practicable in the loins.

It is shown (p. 166) that the direction of these movements is in conformity with, indeed is dependent on, the disposition of the articulating processes in different parts of the spinal column; thus, the mode in which the articulating processes of one lumbar vertebra are embraced by those of the vertebra below, renders rotation between the two bones, upon a vertical axis, impossible.

Mr. Humphry devotes a chapter of his work to the "*proportions of the human figure*," and gives the following among other results of numerous measurements. The lower extremities are of great proportionate size, and, in both the upper and the lower extremities, the segments nearest to the trunk are comparatively lengthy—the more distal ones being comparatively short. The inferior animals, on the contrary, are remarkable for the comparatively greater length and strength of the more distal segments. This peculiarity in the proportions of the several parts of the limbs in man is attained during growth—the characters of the animal type being more and more relinquished as we approach adolescence. The inferior races of mankind exhibit indications of imperfect growth, not only in the deficiency of their stature, but also in the greater similarity of their limbs to the animal and fetal type; thus, in the Negro, the forearms and hands, and the legs and feet, are longer in proportion to the arms and thighs than they are in the European. In rickety and deformed persons, also, the growth of the thighs and arms is usually defective, while the hands and feet attain nearly or quite their proper length. It is very remarkable, however, that in true dwarfs the growth of the thighs and arms rather exceed the normal relative standard; whereas in giants it is rather deficient. Hence, Mr. Humphry deduces the paradox that dwarfs, though undersized, are in reality *overgrown* persons; and the converse, that giants, though oversized, are rather *undergrown*.

We glean the following remarks on *fractures*: The bones are, in adults, weakest and most often broken at the narrowest parts, which are always at or near the points of confluence of the curves of their shafts. In elderly persons, however, expanded parts of the bones are rendered weaker by the disproportionate absorption of the cancellated structure, and fractures are consequently more common near the joints: and some instances which are given of fractures of the anatomical neck of the humerus in old persons form an illustration of this.

Spontaneous fractures (from muscular force) of the long bones are very rare, except in the case of the humerus; two instances, however, are given of its occurrence in the femur during the spasms that attended cholera, and four instances are mentioned of fracture of the sternum by the contraction of the muscles.

Although the clavicle lies close beneath the skin, the fractures of that bone are very rarely compound; this is accounted for by the fact that the outer end of the fracture, which receives the impulse, is almost always driven behind the inner one, into the loose cellular tissue of the neck.

Instances are mentioned of fracture of the glenoid cavity of the temporal bone by a blow upon the lower jaw, which drove its condyle into the skull, of the neck of the astragalus, and of the temporal bone lacerating the carotid artery.

Fractures of the spine are most frequent at the junction of the dorsal with the lumbar region; but at whatever point they occur, the upper portion is almost invariably driven in front of the lower.

Bony union, after fracture of the neck of the femur, fails to take place, not because the part is insufficiently supplied with blood, but because the bone is here surrounded only by a thin sheet of fibrous and synovial tissue, which affords no opportunity for the formation and lodgment of the materials from which any *external callus* might be formed; because the bony surfaces themselves are not retained in sufficiently close and steady apposition to permit of the slow process of *direct osseous union*, and because that process is still further disturbed by the admission of synovial fluid into the fracture.

Mr. Humphry adopts the plan of trephining the bottom of the acetabulum, so as to enable him to observe the condition of the *round ligament of the hip* in the various positions of the joint, and finds that the office of the ligament is not, as stated by Weber and others, to limit adduction of the thigh in the *erect* posture, inasmuch as when the thigh is extended the ligament cannot be rendered tense by any adduction or rotation of the thigh. In the *flexed* position of the thigh, however, the ligament is tightened by adduction or rotation of the limb outwards. He concludes, therefore, that the chief use of the ligament is to prevent too great inclination of the opposite side of the pelvis in alighting upon the limb in the bent position of the joint. He says that it is comparatively thick in fetal and early life, and becomes thinner with advancing years, and that it is torn in each variety of dislocation of the hip. He observes that one of the uses of the notch at the lower part of the acetabulum is to afford room for the round ligament when the thigh is abducted or rotated inwards.

The *movements of the knee*, though apparently simple, are described by Mr. Humphry as being really very complicated and difficult to analyze, in consequence of two or more of them taking place at the same time. They are, 1st, flexion and extension; 2dly, rotation of the leg inwards and outwards—or pronation and supination of the leg—in the bent position; 3dly, turning of the tibia upon a *transverse axis* drawn through its upper end; 4thly, a sliding of the tibia backwards and forwards; 5thly, a rotation of the leg upon a *vertical axis*, which takes place during flexion and extension, and which is, therefore, to be distinguished from the movements of pronation and supination, which takes place in the flexed position only. The 3d and 4th movements take place, as well as the 5th, during flexion and extension, and they are so combined as to keep the crucial ligaments tight in every position of the joint.

The offices of the several ligaments are stated to be as follows: All are rendered tense by extension; all tend, therefore, to limit that movement; and

when the limb is straight they hold the joint firmly locked, preventing any movement but flexion. In the flexed state the lateral and posterior ligaments are all relaxed, and exert little or no influence upon the movements of the joint. The external lateral ligament does not limit pronation and supination of the leg, as it is often said to do. The crucial ligaments, being preserved in a state of tension at times, serve to hold the bones together when the lateral and posterior ligaments are relaxed. Moreover, the anterior crucial ligament prevents the tibia from being carried *forwards* upon the femur, either by the pull of the extensor muscles, or by any external force; it also limits *pronation* of the leg. The posterior crucial ligament prevents displacement of the tibia *backwards*. It is stronger than the anterior crucial ligament; and it needs to be so, because the flexor muscles, which tend to produce this displacement, have a more direct and powerful influence upon the tibia than have the extensor muscles, which tend to draw the bone forwards. The ligament also limits *supination* of the leg.

The semilunar cartilages are appendages to the tibia, and accompany it in its chief movements upon the femur; but in supination and pronation they adhere to the femur, and move with it upon the tibia.

The *short internal lateral ligament of the temporo-maxillary joint* is described by Mr. Humphry as a well-defined structure, though it has escaped the observation of anatomists. It arises by a broad base, a little external to and in front of the long internal lateral ligament, from near the same point of the spine of the sphenoid bone, and is attached, by a narrower apex, to the sharp ridge descending from the inner extremity of the condyle, immediately behind the insertion of the external pterygoid muscle. Like the *external lateral ligament*, it passes over the condyle, so as not to interfere with its forward or backward movement; and it combines with that ligament in limiting the advance of the condyle forwards when the mouth is open, and in preventing its too great retrocession when the mouth is being closed. By fixing the neck of the bone, when the mouth is being opened, it also combines with the outer ligament in promoting the forward movement of the condyle. A line drawn through the neck of the jaw, between the points of insertion of these two ligaments, represents the axis upon which the jaw revolves during the opening and shutting of the mouth; and the condyle plays forwards and backwards between the two ligaments, both of which tend to prevent its displacement in a lateral direction as well as backwards or forwards.

On the Physiological Action of certain Poisons. By Professor KÖLLIKER.
(*'Virchow's Archiv.'* v. 10, 1856.)

The poisons experimented with are curare, canine, strychnine, opium, nicotine, veratrine, hydrocyanic acid: the subjects, frogs, with a few rabbits and dogs: the principal results as follows:—

1. *The effects upon muscular irritability.* (a) Some poisons, as curare, and probably canine, paralyze the nerves in the interior of muscles without at all diminishing the muscular irritability. On the contrary, this irritability seems to continue longer than usual. (b) Other poisons, as veratrine, and probably extract of black hellebore, destroy the muscular irritability, but do not act upon the nerves. (c) Others, again, as hydrocyanic acid and its compounds, paralyze both nerves and muscles. (d) Muscles, the nerves of which have been paralyzed by curare, respond to a local stimulus only by partial contractions, which are somewhat of a tetanic character. (e) Muscles fatigued by tetanic contraction, which contraction may have been produced by opium, strychnine, or galvanism, are less irritable, and their irritability is sooner lost than other muscles which have not been so fatigued.

2. *The effects upon cadaveric rigidity.* (a) This rigidity is developed more slowly in muscles the nerves of which have been completely paralyzed by curare. (b) This rigidity is developed more quickly in muscles the muscular irritability of which has been paralyzed by veratrine. (c) Cadaveric rigidity is also developed more quickly in muscles which have been subject to tetanic contractions.

3. *The effects upon the heart proper, and upon the lymphatic hearts.* (a) Poisons which paralyze the nerves, as curare and conine, have little action upon the heart proper. (b) The poisons which paralyze the muscular fibre paralyze the heart, and this organ becomes speedily rigid. When, moreover, the animal has been poisoned by hydrocyanic acid, the paralysis of the heart is accompanied by a degree of relaxation which is not met with when veratrine has been used as the poison. (c) The poisons which cause tetanus act very slightly upon the heart, except in cases where the tetanus has been caused by opium, and then each spasmodic paroxysm is accompanied by a pause in the action of the heart at the moment of diastole. (d) The lymphatic hearts of frogs are paralyzed by the poisons which paralyze the peripheral nerves, and hence these hearts cannot be considered as having an intrinsic principle of mobility. (e) During the tetanus which is caused by strychnia and opium, the lymphatic hearts are arrested in the moment of systole. (f) These hearts, also, are thrown into a state of tonic contraction, only more slowly than the rest of the muscular system, by the passage of a continuous current along the spinal cord.

4. *The effects upon the nervous system.* (a) The special action of certain poisons, as curare, upon the motor nerves, to the exclusion of the sentient nerves (at any rate these latter nerves are not affected until a much later date, and then in a far inferior degree), points more clearly than any other experiment to the existence of two orders of nervous fibres. (b) Nerves completely paralyzed by curare may as completely recover from this state. (c) Curare, conine, nicotine, and prussic acid exercise their paralyzing influence upon the motor nerves through the blood, the first three acting first of all upon the ramifications of the nerves, the last upon the trunks.

— In a word, the poisons have special affinities for certain organs—some for the nervous tissues and some for the muscular. There are, no doubt, other poisons which have special affinities for other organs, as for the blood, but as yet we know nothing of them. M. Kölliker divides the poisons which act upon the nervous tissue into three groups: (a) Those which act on the gray substance—veratrine, strychnine, opium. (b) Those which affect the tubular structure—curare, conine. (c) Those which act on both elements—prussic acid, nicotine, ether. In each group some excite and others depress. It is doubtful whether any poison acts exclusively upon the muscular tissue, though veratrine may almost be entitled to this mode of action.

V.

REPORT ON MATERIA MEDICA AND THERAPEUTICS.

Further Observations on the Influence of Liquor Potassæ and other Alkalies upon the Therapeutic Properties of Henbane, Belladonna, and Stramonium. By Dr. GARROD, Professor of Materia Medica in University College. ('Proc. of the Med. and Chir. Society,' 22d June, 1858.)

The object of this second communication is—

- 1st. To prove that the active principles of the plants under consideration are absolutely destroyed by the influence of the caustic alkalies.
- 2d. To show the ratio which must exist between the different preparations of the plants and the alkalies for the neutralization to be perfect.
- 3d. To ascertain the time demanded for the decomposition to be complete.
- 4th. To illustrate clinically the influence of the alkali in preventing the occurrence of symptoms, and removing such when large medicinal doses of these solanaceous drugs are administered.

Dr. Garrod, before proceeding to discuss these various heads, brings under notice a few points relating to the nature of liquor potassæ, and the properties of some of the official preparations of henbane, &c., showing that the former, although strongly caustic, still possessed but little neutralizing power, containing so small an amount of potash—not more than 6.7 per cent.; and that most of the preparations of henbane, belladonna, and stramonium, as the tinctures and extracts, were strongly acid in reaction, and hence, before the alkali could act upon the active principles contained in them, it must first neutralize this acidity, next separate the alkaloids from the acids with which they naturally are combined in the plants; that, therefore, much more was required (measured by the physiological or therapeutic strength of the drugs) to neutralize the galenic preparations than their alkaloids, or the active principles themselves. To prove that the active principles were absolutely destroyed by the alkali, he (Dr. Garrod) performed several experiments in the following manner: A solution of atropine was made by dissolving it in water with the aid of a little spirit, dividing the solution into two parts, adding to one some carbonate of potash, to the other a sufficiency of liquor potassæ, and permitting both to remain for some hours. Chloroform was afterwards well shaken with both solutions, and allowed to subside, the supernatant fluid being poured off, and the chloroform washed with a little distilled water. Each portion was evaporated spontaneously in glass dishes. From the solution, to which carbonate of potash had been added, a gummy matter was obtained (soon, however, becoming crystalline), a solution of which dilated the pupil intensely; and when acidulated with hydrochloric acid, and chloride of gold dropped in, gave rise to the beautiful plumose crystals of the double chloride of gold and atropine. From the second solution, that to which liquor potassæ had been added, a strong-smelling substance was left, on the evaporation of the chloroform, having no power of dilating the pupil, and giving rise to no crystallization with the gold salt.

These experiments demonstrated beyond doubt the absolute destructive agency of the caustic alkali upon the active principles. It was also shown that most other alkaloids, as morphia, quinine, cinechonia, &c., were not so destroyed. To show the ratio which must exist between the different preparations of the plants and the fixed alkali, in order that neutralization may be perfect, Dr. Garrod gives the result of more than sixty experiments and observations in a tabular form, from which it appears that when atropine is acted

upon by liquor potassæ, the destructive influence of the latter is so great that less than twenty minims are required to neutralize one grain of the former, and that probably pure potash will destroy its own weight of atropine. That when belladonna preparations are employed, the power of the potash becomes weakened, from the causes above alluded to, namely, the natural acidity of the drugs, and the necessity of first displacing the alkaloid from the acid with which it is combined; still, however, it was shown by the table that fifteen minims of liquor potassæ will destroy a fluidrachm of the tincture, and that twenty-five minims are sufficient to produce the same change in five grains of the extract; at once demonstrating that quantities very greatly beyond the medicinal doses of these drugs—indeed, even poisonous amounts—are rendered quite inert by very moderate addition of the alkaline solution.

The same is found to hold good in the case of daturine and the preparations of stramonium. Ten minims of liquor potassæ will neutralize a drachm of tincture of henbane, and thirty minims destroy nine grains of extract of henbane, although when ten grains are employed, dilatation will often ensue from a small portion of the extract, less than one grain being left free; and it should be observed that very minute proportions of these preparations are amply sufficient to induce the effect. Of course these extracts and tinctures are liable to variation in strength, acidity, &c., circumstances which must necessarily produce an alteration in the requisite amounts of liquor potassæ required for complete neutralization. With even the best extract, however, procured from one of the first druggists in town, it was found that nine grains were destroyed by the above named quantity of potash. Nine grains of good extract of henbane and three fluidrachms of good tincture of the same, may be considered as doses of the drugs which few practitioners would prescribe; yet these are destroyed by thirty minims of liquor potassæ, proving beyond all doubt that in the proportions prescribed in actual practice a total neutralization of effect ensues. To ascertain the required time, Dr. Garrod made experiments with solutions of atropine, and commenced the observations shortly after the addition of the potash. In an hour and a half the effect on the pupil was much diminished, and in two hours and a half ceased altogether. The influence of the alkali in preventing the occurrence of symptoms, and removing the same when large medicinal doses of these solanaceous drugs are administered, was clinically illustrated by the narration of several cases, in which, after very decided effects had been induced by henbane or belladonna preparations, the addition of a very small quantity of liquor potassæ to the draught (the patient continuing the other drugs) quickly caused the cessation of the symptoms; and again, other instances where the withdrawal of the liquor potassæ from a combination was followed by the occurrence of powerful symptoms. From these observations and experiments Dr. Garrod concludes that the liquor potassæ possesses the peculiar power of destroying the active principles of henbane, belladonna, and stramonium, even when in very dilute solutions, and that the combinations frequently prescribed are utterly incompatible both in a chemical and therapeutical point of view.

Veratrum Viride as an Arterial Sedative. By Members of the Massachusetts Medical Society. ('Amer. Journal of Med. Sciences,' Oct. 1858.)

This paper is made up of mutual contributions from members of the Middlesex East District Medical Society, Massachusetts. From it we learn that the *veratrum viride* was introduced in 1835 as an important arterial sedative in most inflammatory affections, and that its reputation (which has been gradually extending since this time, is well deserved.

Veratrum viride (American white hellebore, Indian or meadow poke, itch weed) belongs to the order Melanthaceæ. It grows in moist localities, from Canada to Georgia; and, according to Dr. Gray, it is closely allied to the *veratrum album*, or true white hellebore of Europe. The root (which is the part used) has a sweetish bitter taste, and produces a persistent burning sensation in the mouth and throat and stomach. Applied to the skin it

causes irritation, rubefaction, and even vesication. From the well-known drastic action of *veratrum album*, it was presumed that the *v. viride* had similar drastic properties; but general testimony goes to show, that it *very seldom* if ever purges. Considered chemically, it is found to contain gum, starch, sugar, bitter extractive, fixed oily matter, coloring matter, gallic acid, an *alkaloid identical with veratrin*, lignin, and salts of lime and potassa. The alkaloid is nearly insoluble in water, more soluble in ether, most soluble in alcohol, and hence the tincture of the root is the preparation used.

On the Therapeutic Properties of Sarsaparilla. By Prof. BÖCKER, of Bonn.
(*Edin. Med. Journal*, Oct. 1858.)

Dr. A. M. Adam, in some interesting 'Medical Notes from the Continent,' refers to some interesting experiments by Prof. Böcker upon Sarsaparilla, as yet unpublished. Dr. Böcker told Dr. Adam "that, after carefully performing ninety-eight experiments with this drug on healthy people, he found that, contrary to our usually received opinions on the subject, it possesses neither diuretic nor diaphoretic properties. Another series of twenty-six experiments, on the persons of uncured syphilitic patients, gave exactly the same results. Böcker also satisfied himself that sarsa does not increase the efficacy of the agents, such as iod. potass., &c., which are usually given along with it; and that the good results obtained by the administration of this salt, dissolved in decoction of sarsa, are in no degree attributable to any virtue in the solvent fluid. I told Dr. Böcker that I remembered hearing Professor Syme, many years ago, express his opinion on the utter uselessness of so expensive a drug as sarsa, remarking, in his own quaint, forcible style, that he believed an 'infusion of hay' would be just as good, and a vast deal cheaper. He seemed amused, and said, that he entirely agreed with Syme; that infusion of sarsa had no greater effect on the system than so much common tea, and that we must regard it merely as a pleasant, but very expensive, vehicle for the administration of other medicines."

On the Influence of the Mercurial Preparations upon the Secretion of Bile. By Dr. GEORGE SCOTT, formerly Physician to the British Hospital at Renkioi.
(Beale's 'Archives of Medicine,' No. 3, 1858.)

Kohlker tried the effect of calomel upon the secretion of bile in dogs with biliary fistula, but it is difficult to form any definite conclusions from his observations in this respect. Once the bile seemed to be increased, and twice it seemed to be diminished by the administration of calomel. Dr. Scott enters upon the same inquiry; and the result of four experiments, conducted with great ability and extreme care, is, that there is a *diminution in the amount of fluid bile and bile solids secreted after the administration of large doses of calomel.*

"In the first two experiments," he says, "particularly in the second, the decrease was, no doubt, due somewhat to the diminished quantity of food taken the day after the calomel was given; but that it was not all dependent upon this cause seems to be pretty clear—1stly, from the fact of the bile of 19th June, the day following that in which food and milk were purposely withheld from the dog, having been considerably greater than the quantity secreted on the day following the 16th June, when also no food was taken, and when in addition six grains of calomel had been administered to the dog; and, 2dly, from the bile in the last experiment, when almost exactly the same amount of nourishment had been consumed *after as before* the exhibition of calomel, having been also very much diminished in quantity. In three of the above experiments, the bile-acids were also considerably *diminished* after the calomel; but in one, viz., the third experiment, they were *increased*. Why the bile-acids should be increased in the latter case, and diminished in the other three, it must be confessed it is difficult to explain.

"Although it would be rash to venture any decided opinion from the very small number of experiments above detailed, yet the few that were made all point so much to one conclusion that, if they be confirmed by future and more

varied trials, they would throw considerable doubt upon the generally received opinion that calomel in large and purgative doses increases the flow of bile. It may be urged that although calomel does not increase the secretion of bile in the dog, that is no reason why it may not do so in man; and that, even if mercury do not excite the liver to increased secretion in a healthy state of the organ, it may still do so in certain diseased conditions of the same. If the first objection were true, the same could be brought against the results of the experiments which have been made upon the lower animals to ascertain the action of poisons or any other articles of the *Materia Medica*. With regard to the second objection, nothing analogous occurs in the action of drugs upon other organs: there is no medicine which diminishes the secretion of urine in the healthy state of the kidney, and increases the same in certain diseased conditions of the organ; there is no medicine which diminishes the amount of sweat in a healthy state of the skin, and acts as a diaphoretic in certain diseased conditions of the integument. Hence it seems difficult to suppose that anything which diminishes the flow of bile in a healthy condition of the liver, should increase the secretion of the same in a diseased state of that organ.

"Whether it be the mere purgative effect of calomel which causes the diminution in the secretion of bile, or some specific action, further experiments must decide. Of course, it must be understood that the above remarks apply only to cases where purgative doses of calomel have been given. Whether small and frequent doses of calomel continued for a length of time, so as to produce the specific action of mercury upon the system, really augment the biliary secretion, is matter for further experiment.

"The above analyses were made in the laboratory of Dr. Lionel Beale, to whose great kindness I am indebted for the opportunity of performing these experiments."

On the Preparation of Digestive Powder from the Pig's Stomach. By Dr. BEALE, Physician to King's College Hospital. (Beale's 'Archives of Medicine,' No. 3, 1854.)

Various chemical processes," says Dr. Beale, "more or less complicated, have been employed in the preparation of pepsin. Partly in consequence of these being tedious and difficult of performance, and the results uncertain, and partly from the sale of perfectly useless preparations, the remedy has of late to some extent lost its reputation. Having been engaged in some experiments upon artificial digestion, and having met with considerable difficulty in obtaining clear solutions of digestive fluid that would filter, I tried various new plans of preparing digestive solutions. The following answers very satisfactorily, is very simple, and free from many of the objections to which other processes are liable:—

"The mucous membrane of a perfectly fresh pig's stomach is carefully dissected from the muscular coat, and placed on a flat board. It is then cleansed with a sponge and a little water, and much of the mucus, remains of food, &c., carefully removed. With the back of a knife, or with an ivory paper-knife, the surface is scraped very hard, in order to press the glands and squeeze out their contents. The viscid mucus thus obtained contains the pure gastric juice, with much epithelium from the glands and surface of the mucous membrane. It is spread out upon a piece of glass, so as to form a very thin layer, which is dried at a temperature of 100° over hot water, or in vacuo over sulphuric acid. When dry it is scraped from the glass, powdered, and kept in a stoppered bottle. A good digestive fluid may be made as follows:—

Of the powder	5 grains.
Strong hydrochloric acid	18 dr. ss.
Water	6 ounces.

"The fluid may be filtered easily, and forms a perfectly clear solution, very convenient for experiment. If it is to be taken as a medicine the powder may be mixed with an equal quantity of starch, and ten grains of the mixture taken for a dose, a little diluted hydrochloric acid in water being taken at the same

time. It may be taken with the salt at a meal. The powder is devoid of smell, and has only a slightly salt taste. This powder undergoes no change if kept perfectly dry. It contains the active principle of the gastric juice almost unaltered."

The Therapeutic Relations of Opium and Belladonna. By Mr. BENJAMIN BELL.
(*'Edinburgh Medical Journal,'* July, 1858.)

The two following cases are calculated to set forth the advantages of the subcutaneous method of administering narcotic remedies, as well as to afford further proof of the antidotal relations of opium and belladonna—a point to which attention was called, first of all, by Dr. Thomas Anderson—(*'Abstract' XXII, p. 303.*)

"On the 10th of March," says Mr. B. Bell, "I was requested to visit one of the men belonging to the same institution, who had been afflicted, for nearly two months, with sciatica of the right thigh and leg. His sufferings were very severe, almost without intermission, and aggravated by motion of the limb. I attempted to treat him, in the first instance, constitutionally, with croton-oil pills, quinine, and iodide of potassium; but as no material improvement took place, recourse was had to the local treatment by injection. Twenty minims of a solution of morphia, double the ordinary strength, were introduced over the sciatic nerve, where it emerges from below the pyriformis muscle. He experienced immediate and complete relief, which continued for eight or ten hours; but at the end of that time the pain came back again as intense as before. The injection was repeated on the two following days, with benefit to this extent, that when lying quietly in bed he now had intervals of comparative freedom from acute suffering. The internal remedies were continued.

"The disease, however, was very obstinate, and I determined to try the injection of atropia, which had answered so well in the case of the young woman already mentioned. With her, one twelfth of a grain had been employed without causing unpleasant symptoms, although the seat of pain was in the forehead; and I therefore inferred that in the present instance, where the symptoms were so much more obstinate, and at so great a distance from the brain, I might safely use three times the quantity. I accordingly injected one-fourth of a grain of sulphate of atropia over the sciatic nerve. He experienced instantaneous relief, just as when the morphia had been used. This was at twelve o'clock. He said that he felt rather sick. I waited for some minutes, after which, as he made no further complaint, I left him in bed looking for a comfortable sleep, now that the pain was entirely removed. Upon reaching home, at half-past four, I found that a message had come some time before, intimating that the blind man, on whom I had operated, was very ill, much excited, and unable to speak. I went immediately, and found him very much as described; his countenance and head extremely flushed, with great distension of the veins; the breathing hurried; the pulse rapid and small; the skin hot and bathed in perspiration; he was exceedingly restless, his hands incessantly moving as if engaged in some of his ordinary handicraft duties at the asylum; his hearing was evidently acute, as he attempted to reply when spoken to; but there was a remarkable dryness of the mouth and throat, which prevented articulation, and the mental disturbance had been less complete. From the previously disorganized condition of both corneas, the condition of his pupils could not be examined. It is perhaps worthy of notice, that the general surface of his body appeared to be very itchy, from his frequent endeavors to scratch it.

"His condition was altogether alarming, and there were no indications of any tendency to improvement. Under these circumstances, being acquainted with no more promising plan of treatment, I had recourse, with some confidence, to the subcutaneous injection of morphia. I injected without delay twenty-five minims of the double strength solution into the gluteal region of the opposite limb, which happened to lie next the edge of the bed. This was about five P. M. Almost immediately a decided change for the better was perceptible. He became considerably calmer, and swallowed a little water without much difficulty. I visited him again at half-past seven, and was glad to

find that he had been sleeping quietly in one posture for an hour and a half. The remarkable flushing and congestion of the head and face had entirely disappeared. The pulse was fuller and less frequent; the skin soft and comfortable. He continued to sleep composedly until four next morning, when he awoke still rather confused; he again fell asleep, and awoke at six, apparently quite well and free from mental disturbance. When I called in the course of the forenoon, I found him entirely relieved from pain and in good spirits, but quite unconscious, or at least oblivious, of all that had happened during the period of so much anxiety to those around him. He had been out of bed walking up and down his room, quite delighted to find that he could now move about without any uneasiness in the affected limb, a feat which had not been possible for many weeks.

"A few days after these occurrences, a former patient, in whose case I had used the atropia a month before, had a violent return of the tic in her brow, and was anxious to have the same treatment employed. I questioned her particularly as to her previous experience of the two remedies, and she gave a decided preference to the atropia. I used only five minims of a strong solution (gr. viij ad 3j), or one-twelfth of a grain—the same quantity as on the previous occasion. She was suffering intense pain at the time, and, as usual, the relief was almost immediate; but in a few minutes she moaned a good deal, and on being asked the reason, now that the pain was gone, replied, that she felt afraid, and saw a number of strange looking people at the foot of her bed. Her pulse soon became frequent and rather small, and she had a considerable amount of subsultus and jerking of the hands. The quantity of atropia that had been injected was so small, that I had no hesitation in leaving her for a time; but I directed one of the other inmates of the asylum to encourage her by sitting at her bedside, in case she continued sleepless and uncomfortable. This was at mid-day. I saw her again at 2.30. She was much in the same condition—restless and moaning, with a frequent pulse, and complaining, when questioned, of an unpleasant feeling of deadness or want of power in the lower extremities, and of dryness in the throat. With her own ready consent, I injected fifteen minims of the strong solution of morphia over the right shoulder-blade. She soon felt much more comfortable, and after the lapse of two hours, the pulse, from being small and rapid, had become full and soft, although still more frequent than natural. On the following day she was comparatively well, and quite from pain. She mentioned very distinctly that, immediately after the morphia was injected over the shoulder-blade, she had experienced complete relief from an unpleasant sensation in her head, and also from the feeling of deadness in her lower extremities already referred to."

Experiments on the Action of Caffein. By Drs. STEUHMANN and FALK, of Marburg. ('Archiv. f. Path. Anat. & Physiologie;' and 'Amer. Med. Monthly,' Feb. 1859.)

These gentlemen have made a series of thirty-eight experiments with caffein, on dogs, cats, rabbits, birds, frogs, snakes, and fishes, clearly showing that caffein is a poison that will kill in comparatively small doses, and in a short time. Thus five centigrammes (about $\frac{1}{20}$ gr.), introduced beneath the skin of frogs and toads, determined local irritation, sometimes slight excitation of the circulation, respiration, and of the organs of locomotion. Synchronous with this, or somewhat later, there is found hyperæsthesia of the nervous centres, with tonic, cataleptic, and tetanic cramps, and sometimes anæsthesia and paralysis.

In one case, the injection of five centigrammes into the veins of a cat brought on death in a few minutes. A smaller dose produced death in a few hours. In addition to the tonic and clonic spasms, there was observed salivation, liquid stools, disturbed respiration and circulation, dilatation of pupils, reduction of temperature, and anæsthesia. A like dose, introduced under the skin, excited salivation and vomiting, then adynamia, very labored respiration, reduction of temperature, with a tendency to fright and spasmodic and paralytic phenomena.

Large dogs were not destroyed when 5 centigrammes were given by the stomach. But a dog who had survived such a dose succumbed in two minutes after the injection of a like quantity into the jugular; while another, larger and older, was not destroyed by the injection of 25 decigrammes in the *crural vein*. (This difference of result is remarkable; was it on account of the size and the race of the animal, or the vein into which the injection was made? It is unfortunate that this experiment was not repeated.) Whatever the modes of administration, dogs were purged, and food in the stomach produced vomiting. Rabbits died in an hour or an hour and a half, with 3 decigrammes to 5 centigrammes, presenting symptoms analogous to those exhibited by the dogs.

Necroscopic examination exhibited no alteration sufficient to explain the death. There was only found an inequality in the distribution of the blood, only hyperæmia of some and anæmia of other organs; the heart, liver, and larger vessels contained much black blood, possessing all the characteristics of venous blood. All the other alterations were insignificant.

The pathological disturbances caused by caffeine are of different kinds; but the most important occur in the nervous system. It destroys by exhaustion of nervous power, and seems to act especially upon the heart and the parietes of vessels.

Tobacco as an Antidote for Strychnia. By Dr. THOMAS O'REILLY. ('Dublin Med. Press,' June 23, 1856.)

CASE.—On Thursday, September 10, 1857, at one o'clock P.M., I was urgently requested by Dr. Byrne to accompany him to see a Mr. Johnson in this city (St. Louis, Missouri, U. S.), who, he was informed, had taken poison. On arrival at his residence we learned the following history to account for his condition: After a three years' cruise, as a musician on board an United States frigate, he was paid off in New York, and for the amount purchased drafts on St. Louis, which on his arrival here were found to be worthless. This, together with recent domestic sorrows, so overwhelmed him that he determined on self-destruction. To accomplish this end, he called on a respectable druggist, and demanded a large dose of poison for a dog. The druggist gave him six grains of strychnine, which he carried into an adjoining beer-house, and playfully remarking to the bar-tender that he was going on his last spree, mixed the strychnine with beer and drank it off. Soon repenting this rash act, he mentioned to those present that he had taken poison, and wished they would give him an emetic. One was procured which vomited him freely, but, notwithstanding, violent symptoms set in, and we were called on to see him.

On entering his room we found him stretched on his back, his countenance expressive of the most painful suffering and distress, his frame shaken by frequent convulsive spasms, his limbs rigidly extended, and his head slightly bent backward. His face was of a livid red, and covered with a profuse sweat; his eyes were sunken, and moved with a rapid motion; his mouth was covered with saliva, which he ejected by spasmodic jerks, strongly reminding me of a case of hydrophobia which I had seen some time before. His respiration was quick and difficult, and attended with great pain in the precordial region, skin warm, and covered with a profuse clammy sweat, and he had copious watery discharges from his bowels. His intellect clear and collected, and his feelings morbidly acute that the slightest touch appeared to aggravate his sufferings and bring on a spasm. On this account we could not correctly ascertain the state of his pulse.

Ignorant of any antidote likely to relieve him, and pressed by the urgency of the case, Dr. Byrne, acting on the suggestion of Dr. Haughton's paper read before a meeting of the Royal Irish Academy, November 29th, 1856, took a cigar from a gentleman present, and infused it in half a pint of water.

One hour and fifteen minutes after he had taken the poison, we gave him the first dose of the tobacco infusion, which he swallowed with difficulty. We continued it in tablespoonful doses at intervals of five minutes, until he had taken half the quantity infused, before we noticed a favorable change. Then the muscles became relaxed, the spasms less severe, and the intervals

between them longer; and so conscious was the patient of relief, that he constantly called for the tobacco-juice when he felt the paroxysm approaching. This encouraged us to persevere with the infusion, prolonging the intervals between each dose, as the frequency of the spasms abated; until finally, after twelve hours, they disappeared, leaving him in a state of fearful nervous prostration, from which he recovered in a few days, under a careful tonic treatment.

In the quantity of infusion administered we used one ounce and two drachms of dry tobacco leaves, including the cigar—a quantity which no healthy condition of system could stand; but the urgency of this case demanded it, and the result justified it, and at the same time afforded us another illustration of the counteracting influence of poisons, and tended in some way to establish the correctness of the conclusions at which the Rev. Mr. Haughton had arrived by his experiments.

On the Action of certain Vegetable Diuretics. By Dr. WILLIAM A. HAMMOND, Assistant-Surgeon, U. S. Army. ('American Journal of Medical Sciences,' January, 1859.)

The ensuing investigations consist mainly of repetitions of those performed some years since by Krahmer, and subsequently by Bird. They have reference to the appreciation of the influence of squill, juniper, digitalis, and colchicum, over the quantity of the urine, its specific gravity, and the amount of its solid organic and inorganic constituents. They were all performed upon healthy adult males.

The quantity of urine was determined in cubic centimetres, and the weight of solids in grammes.

The method employed for the determination of the whole amount of solid matter was as follows:—

Ten cubic centimetres of the urine were evaporated to as complete dryness as possible *in vacuo* over sulphuric acid, and the residue accurately weighed. By simple proportion the amount of solids in the whole quantity of urine was easily ascertained.

Although it is impossible to get rid of all the water by this process, the quantity remaining is extremely small, and the results obtained are far more accurate than those yielded by evaporating to dryness in the water-bath, as generally practised. No matter how carefully this latter method is conducted, the loss of urea by decomposition is always an important item, and involves far more serious errors than the imperfect desiccation by the former process.

For the determination of the amounts of organic and inorganic constituents separately, the solid residue obtained as above was mixed with ten to fifteen drops of moderately strong nitric acid, and gently heated till the mass was well dried. The heat was then gradually raised till all the carbon was consumed, and the mass in consequence became white. It was then cooled *in vacuo* over sulphuric acid and weighed. The inorganic matter was thus determined, and the loss showed the proportion of organic substance.

Digitalis.—The subject of the experiments with this substance was about twenty-five years of age, and in good health. For the three days immediately preceding the commencement of the investigation the average quantity of urine daily excreted by him was 1474.5 cubic centimetres, the specific gravity was 1024.50, and the average total amount of solid matter was 75.31 grammes, of which 30.17 grammes were inorganic, and 45.14 organic constituents. The digitalis was given in the form of officinal tincture in doses of 20 minims three times in 24 hours, and was continued for three consecutive days. During this period the manner of living (food, drink, exercise, &c.) was as nearly as possible the same as during the preliminary investigations.

1st day. The urine passed on this day was of a pale straw color, and feeble acid reaction, quantity 1950 cubic centimetres; specific gravity 1013.25; total solids 69.96 grammes, of which amount 31.27 were inorganic, and 38.71 organic

matter. The action of the digitalis was not manifested otherwise than by its effect upon the urine.

2d day. The urine passed on this day was of similar physical character to that above mentioned. The quantity was 1873.6 centimetres, the specific gravity 1014.32, and the total solids 63.74 grammes. The inorganic solids amounted to 30.15 grammes, and the organic to 33.49.

The pulse on this day was somewhat slower and fuller than on the previous day.

3d day. The quantity of urine evacuated on this day was 1624.9 cubic centimetres, and of specific gravity 1020.04. The total amount of solid matter was 67.29 grammes, of which 33.19 were inorganic, and 34.10 organic.

The color, reaction, and odor of the urine were similar to those of the two previous days.

The characteristic effects of the digitalis upon the action of the heart were well marked during this day.

The effect of the digitalis in increasing the amount of urine is seen to have been greatest on the first day. On the second day it had fallen somewhat, and on the third was but 150 cubic centimetres greater than when no digitalis was taken. The solids, it is seen, were less than the normal standard from the commencement, were still further reduced on the second day, and on the third were slightly increased. This diminution is perceived to have been owing to the lessened amount of organic matter excreted. The inorganic substances were somewhat increased in amount over the ordinary proportion.

Juniper.—The experiments with this substance were conducted on a healthy man, thirty-five years of age. The average condition of his urine for the three days immediately preceding the investigations was as follows: quantity 1237.5 cubic centimetres, specific gravity 1022.60; total solids 61.23 grammes, of which 23.12 were inorganic, and 38.11 organic matter. It was of ordinary color and odor, and of strong acid reaction.

Sixteen ounces of the official infusion of the berries of *Juniperus communis* were taken during the twenty-four hours, and the manner of living kept as nearly as possible to correspond with that of the preliminary experiments.

1st day. For this day the quantity of urine amounted to 1732 cubic centimetres, the specific gravity of which was 1016.38; the total solids were 62.75 grammes; of this amount 25.43 grammes were inorganic, and 37.32 organic constituents.

The urine was of a pale straw color, and gave off the characteristic odor produced by juniper. The reaction was feebly acid.

2d day. The quantity of urine passed on this day was 1865.2 cubic centimetres. The specific gravity was 1014.15, and the total solids 58.49 grammes, 22.17 of which were inorganic, and 36.22 organic matter. The physical characteristics were similar to those of the day before. The reaction was barely acid.

3d day. On this day the quantity of urine was 1672.5 cubic centimetres, with a specific gravity of 1018.41. The total solids amounted to 63.27 grammes, of which 27.50 were inorganic, and 35.73 organic matter. The physical characteristics and reaction were the same as on the previous day.

From these experiments it is seen that whilst the quantity of urine was materially increased by the juniper, the amount of solid matter, as a whole, was but slightly affected, the loss in organic matter being about compensated for by the increase in the inorganic.

Squill.—The experiments with this substance were instituted upon the author, and conducted upon the same general principles as the foregoing series. The average daily quantity of urine, for the three days preceding the investigations, was 1358 cubic centimetres. The specific gravity was 1023.51, and the total solids 69.35 grammes; of this amount 27.22 were inorganic, and 42.13 organic matter.

Two grains of the dried bulb of the *Scilla maritima* were taken three times in the twenty-four hours. The other conditions remaining the same as in the preliminary examination of the urine.

1st day. The quantity of urine passed on this day was 1572 cubic centimetres of 1020.34 specific gravity. The total solid matter was 60.67 grammes,

31.07 of this amount being inorganic, and 29.60 organic constituents. The urine was of feeble acid reaction.

2d day. Quantity of urine 1493.5 cubic centimetres, specific gravity 1020.90; total solids 58.22 grammes; inorganic matter 30.15, organic 28.07 grammes. The reaction, &c., were the same as on the preceding day.

3d day. On this day the quantity of urine amounted to 1535 cubic centimetres, and was of 1019.37 specific gravity. The total amount of solid matter was 61.58 grammes, of which 30.58 were inorganic, and 31.00 organic constituents. The reaction, color, &c., were unchanged.

From the above experiments it is perceived that the action of the squill was similar to that of the digitalis and juniper, i. e., causing an increase in the water of the urine and inorganic solids, but a reduction of the amount of organic matter. The loss of organic matter was considerably greater than with either of the other substances.

Colchicum.—The investigations into the action of this substance were performed upon a healthy man, 28 years of age. The urine for the three days immediately preceding the commencement of the experiments, was of the following daily average character: Quantity 1230 cubic centimetres, specific gravity 1025.08; total solids 63.12 grammes; inorganic matter 29.83, and organic 33.29. The reaction was very strongly acid.

One and a half drachms of the official tincture of the seeds of the *Colchicum autumnale* were given three times in twenty-four hours, and continued for three days. During this period the food, exercise, &c. were as nearly as possible the same as during the preliminary series.

1st day. The quantity of urine passed on this day was 1595.7 cubic centimetres, with a specific gravity of 1024.37. The total solids amounted to 77.29 grammes, the inorganic matter of which was 36.50 grammes, and the organic 40.79 grammes. The reaction was strongly acid.

2d day. Quantity of urine 1484.1 cubic centimetres, specific gravity 1024.31; total solids 75.22 grammes. The reaction was very strongly acid.

3d day. On this day the quantity of urine amounted to 1620 cubic centimetres, and was of 1022.06 specific gravity. The total amount of solid matter was 79.33 grammes, of which 34.20 were inorganic, and 45.13 organic constituents. Reaction strongly acid.

It is thus perceived that the action of the colchicum, as compared with that of the other substances experimented with, was very remarkable, it being the only one with which there was an increase in the amount of solid matter eliminated, both organic and inorganic.

From the foregoing experiments, the following table, embracing the averages of each series of investigations, is constructed.

	Quantity of urine	Specific gravity	Total solids	Inorganic solids	Organic solids
Normal standard	1474.5	1024.30	75.31	30.17	45.14
Digitalis	1822.8	1015.87	67.00	31.64	35.36
Normal standard	1287.6	1022.50	61.23	23.12	38.11
Juniper	1783.2	1016.28	61.50	25.03	36.47
Normal standard	1358.0	1023.51	60.35	27.22	33.13
Squill	1633.5	1020.20	60.16	30.60	29.56
Normal standard	1260.8	1025.08	63.12	29.83	33.29
Colchicum	1566.5	1023.58	77.28	35.23	42.04

From the foregoing investigations, it is deducible that neither digitalis, juniper, nor squill, increases the total amount of solid matter eliminated by the kidneys, and that the organic matter is considerably reduced through their influence. Although they do increase the amount of inorganic matter removed

through the urine, yet as it is the organic matter which is generally considered as contaminating the blood in disease, it is evident that they exert no effect when even in depurating this fluid, but on the contrary are positively injurious.

The results obtained, in so far as the experiments with digitalis, squill, or juniper are concerned, are similar to those obtained by Krahmer, but are materially different as regards the colchicum. For, although Krahmer found that under the influence of this medicine there was an increase in the amount of organic matter excreted, this was so small as to lead to the supposition that it may have been accidental, and besides there was a reduction in the quantity of inorganic substance removed. It is desirable, therefore, that we should have further observations with this article.

On the Therapeutic Action of the Constant Galvanic Current. By Dr. ROBERT REMAK. ('Edinburg Monthly Journal,' August, 1858.)

"After the discovery of the voltaic pile," says Dr. Robert Remak, "many experiments were made with a view to the application of the galvanic current, as a means of treatment in diseases of the nerves and muscles. Stimulated by the admonitions of Alexander Humboldt, Loder of Jena and Grassengieser of Berlin, were amongst the first to treat various paralytic affections of the limbs and sensorial nerves in this manner. The opinion at that time being, that not the continued action of the current, but the shocks produced by the interruption of the current, are the best means of exciting the normal action of the nerves and muscles, these trials could not result in success; because, as my researches have now proved, such shocks can in very few cases be advantageously employed. Thus, for many years, the electrical machine formed the only means of producing and applying electricity to the above named diseased conditions, and the opinion was generally adopted by physicians that it signified little from what source electricity for medical purposes was produced.

"Although the discoveries of Becquerel and Wollaston (1820-30) supplied the means of producing a constant and equable galvanic or electric current, physicians did not avail themselves of these improvements, but preferred using the magneto-electrical and electro-magnetic machines which were constructed after the discovery of the current of induction, made about the same time (as Becquerel and Wollaston's) by Oersted and Faraday. In experimenting with these instruments, the fact was overlooked that the current of induction cannot be applied to the living body without producing shocks (i. e., spasmodic contractions of the muscles), and that these shocks have in many cases a weakening effect. At last, the chief consideration came to be, the *easiest* method of procuring electricity for medical purposes. So, at last, the magneto-electric machine (of Saxton Stöhrer, &c.) gave place to the self-acting electro-magnetic (galvano-magnetic) machine of Faraday, which was recommended by Duchenne of Paris, and was much approved of in France and Germany. In the work of that physician it was stated that muscles are made to contract most readily by the current of induction, if certain points on their surface are touched by the electrodes. Having been occupied for many years with physiological researches upon muscular contraction, I was not a little curious to know the nature of these mystical points, and on directing my attention to this subject, I soon found that they corresponded with the points of entrance of the muscular nerves, and that the degree of contraction of a muscle was proportionate exactly to the number of motory nerve fibres embraced by the current at its point of application.

"I stated the result of these physiological investigations in a small pamphlet, published in 1855, and drew attention to their value in a practical point of view. It seemed to me quite obvious that, for the successful therapeutical application of electricity, a better and more extensive physiological basis was required than was afforded by this one fact, so, in continuing my researches on the subject, I was led to examine the effect of the constant galvanic current (as it is produced by the elements of Daniell, Grove, and Bunsen) on the muscles and nerves of a healthy man. The results of these further observations

I noticed in an appendix to the second edition of the pamphlet last quoted, also in a note sent to the Academy of Paris. After having continued such researches, made upon my own person and upon many healthy men, for about six months, I was induced, in July, 1856, to apply the constant current as a means of treatment of contractions of muscles in cases of hemiplegia from cerebral apoplexy. The most important result of this application was the fact that the continued current, applied for a few minutes to a contracted muscle, had the effect of immediately relaxing it to a certain extent, and rendering it amenable to the influence of volition.

"After repeating these trials upon 200 cases of different kinds of nervous diseases, I reported, as the result of my further experience, that the continued application of the constant current to the nerves and muscles in rheumatism, paralysis, atrophy, neuralgia and spasmodic diseases, and, in my hands, proved of much greater service, in a curative point of view, than any other application of electricity had hitherto done. I gave my results in a memoir which I read before the Academy of Sciences at Paris, in séance 22d September, 1856; and, on the 29th of the same month, I made some experiments before M. Rayer, who was representative of a commission appointed by the Academy for the purpose, and, on the following day, repeated them before a number of physicians and naturalists.

"From that date to the present I have spent all my time in continuing these researches, and in endeavoring to develop the methods of application of the constant current. In the Society of Medical Science of Berlin, I stated (January 10th, 1857) that the diseases in which the constant galvanic current is of service are—

1. Rheumatism, acute and chronic,
2. Cerebral Hemiplegia,
3. Paraplegia,
4. Atrophy of Muscles,
5. Chorea.
6. Stammering,
7. Trembling of Limbs,
8. Cramps of Authors, &c.,

and I have supported my assertions by presenting cases of these descriptions, which were either cured or improved by this mode of treatment. My subsequent publications on the subject were directed principally to the treatment of atrophy and paralytic diseases. This was accounted for by the fact that certain physiological views, dating from the time of Volta, Marianini, and Nobili, gave rise to the opinion that the continued action of the current had only a relaxing or weakening effect, and could do good only in spasmodic diseases. I have refuted this idea by showing that the continued current, applied in a certain manner, is of use in many cases of paralysis, in which the interrupted current of induction is even injurious.

"One of the most curious results of my researches made during the last year, is the observation that the constant galvanic current, by dilating the bloodvessels, and by promoting absorption of exudations, can be used with good effect in certain inflammations, in which the other antiphlogistic and resorbent remedies are insufficient. There is no doubt that the electrolytical power of the constant current (discovered by Nicholson and Carlisle, 1800) is a powerful means of producing these effects. I have already seen most convincing and gratifying proofs of this fact, not only in rheumatic and traumatic inflammations of joints, but also in the inflammatory states of the spinal cord, which sometimes precedes atrophy of this organ.

"It may readily be supposed that the mode of applying the current must be very different, in order to produce the various actions I have hitherto distinguished: viz., 1st, the catalytic (i. e., electrolytic, antiphlogistic); 2d, the antiparalytic; 3d, the antispasmodic. But, for information on this subject, I am obliged for the present to refer to my various publications.

"In Germany, my experiments have not been repeated; but in France, after my visit in September, 1856, some physicians made some trials upon the sub-

ject, and, as I am now informed, these were not unattended with success. In Britain, I do not know if anything has been done in this way; but it is the object of this short paper to direct the attention of my British colleagues to this discovery (as I dare to name the methodic application of continued galvanic currents to diseased conditions), and I would feel satisfied if I thought that the methods described by me, in a work I am about to publish, would in any way assist them to the successful practice of their art.

"Finally, I think it my duty to state *distinctly*, that all my experiments, upon 700 patients, have been made only with the *constant* galvanic current (of Daniell, Grove, and Bunsen), and that there is reason to doubt if these results could have been obtained by the use of other elements less constant."

Formula for a new Elixir of Peppine. By M. MIALHE. (Bull. Gén. de Thérap., June 30, 1858.)

M. Mialhe makes the pepsine into a generous wine, with the addition of some alcohol, and adds sufficient sugar to hide the nauseous taste of the ferment. This preparation, he tells us, will keep much longer than the preparation recommended by M. Corvisart (pepsine and syrup of cherries), and it is so agreeable to the taste that children will take it readily. The formula is—

Amylaceous pepsine (Corvisart and Boudault) $\mathfrak{z}\text{ss}$, distilled water $\mathfrak{z}\text{viss}$, white wine (vin de Lunel) $\mathfrak{z}\text{viiss}$, white sugar $\mathfrak{z}\text{viij}$, spirits of wine (a. g. 852°) $\mathfrak{z}\text{ij}$. These are allowed to stand until the sugar is dissolved, and then carefully filtered. One tablespoonful, which is equivalent to 15 grains, is to be taken immediately after each meal.

On the Employment of Carbonic Acid as a Medicinal Agent. By M. FORDOS. ('Dublin Hospital Gazette,' Sept. 16, 1858.)

At the end of the last century some experiments were made by medical men in England on the effects produced by gases when used as medicinal agents. A very curious experiment of Ingen-Housz, a Dutch physician, served as the starting-point for these investigations. Ingen-Housz found that a finger, from which the cuticle was removed, and which was painful when exposed to the air, was still more so in oxygen gas, but that the pain ceased when the finger was placed in carbonic acid gas. It appears, however, that this fact had been previously known in France. Beldoes, in England, repeated the experiment of Ingen-Housz, and confirmed what the latter had stated. He directed attention to the local application of carbonic acid in the treatment of ulcerated surfaces.

In 1794, Ewart treated two cases of cancer in the breast with carbonic acid, and obtained good effects. Under the influence of this treatment, the pain disappeared: one of the patients was soon cured, and in the other a sensible improvement took place. Notwithstanding these interesting results, it does not appear that the local application of carbonic acid has been submitted to further investigation since that time, probably on account of the difficulties experienced in the application and management of the gas.

In 1834, M. Mojon, a professor of Genoa, employed carbonic acid gas with success in the treatment of amenorrhœa, and the severe pains which, in dysmenorrhœa, precede or accompany the menstrual discharge. He considered carbonic acid to be a powerful depressant, and an excellent antiphlogistic.

About the same time the use of carbonic acid, as furnished by mineral waters, began to be advocated. It was thus used at St. Alban, in France, in cases of rheumatism.

In 1820, Dr. Hüller organized the carbonic acid baths at Marienbad; and a little later, in 1840, the same was done at Nauheim.

In fact, for several years past, carbonic acid gas has been used at most of the baths in Germany and elsewhere. The gas is collected from its source, and conducted through tubes into chambers, where it is used in different ways. It is used in baths for rheumatism, scurvy, and certain cases of paralysis. It is also applied locally to the eyes and ears. It appears to act as a stimulant to the skin and to the circulation.

In 1855, Simpson, of Edinburgh, recommended carbonic acid for the treatment of painful affections of the uterus and its vessels, such as uterine cancer, utero-vaginal neuralgia, dysury, vesical irritability, &c., and he cites numerous instances of cure.

In 1856, M. Scanzoni employed injections of carbonic acid to induce artificial *accouchement*.

At the same time M. Follin, a surgeon in the Paris hospitals, made experiments with carbonic acid gas, and published an interesting paper on its use, in which he enters largely into the history of the subject.

Subsequently, Messrs. Demarquay, Maisonneuve, Jobert de Lamballe, Broca, Gosselin, &c., have employed the *douche* and *injections* of carbonic acid in various affections, and have obtained excellent results.

Lastly, M. Ch. Bernard, physician to the hospitals of Paris, has published a series of observations on the good effects obtained from injections of carbonic acid in cancerous affections of the uterus.

All the experiments made with carbonic acid prove that this gas may be considered a powerful anæsthetic, which may be used with advantage in many cases; they also prove that it is possessed of medicinal properties, for the effects produced are not confined to the production of insensibility, but amelioration or cure of disease sometimes occurs under the influence of this treatment.

The following simple form of apparatus has been constructed with the view of facilitating the application of carbonic acid in the form of injection or *douche*, and also for applying this gas or hydrogen mixed with the vapors of chloroform, ether, amylene, creosote, or other anæsthetic agents.

Description of Apparatus.—The flask is of thick glass, and may have a capacity of about two pints. A tin tube is made to fit into the mouth of the flask. In the interior of this tube there are some fragments of marble, and above this some pieces of sponge, the object of which will be explained hereafter. The bottom of the tube is pierced with holes to allow the passage of the gas from the flask, and the top is closed with a cap, which screws on, or may be removed at pleasure. A short metallic tube, to which a flexible tube is attached, passes off laterally from near the cap, and this is used for directing the gas to the diseased parts.

Application of Carbonic Acid Gas.—When the apparatus is required to be used for the application of the gas, the tin tube is removed from the mouth of the flask, and 400 grains of tartaric acid in large crystals are introduced, so as to lie at the bottom of the vessel; over this are placed 580 grains of powdered bicarbonate of soda, and half a pint of water. The reaction and disengagement of gas will continue for about fifteen or twenty minutes without agitating the flask; afterwards agitation is to be resorted to from time to time when the action ceases. The two reacting agents being used in the solid state, the gas is disengaged gradually as these are dissolved by the water. The carbonic acid, before entering the flexible tube, passes through the space occupied by the pieces of marble and the sponge, and is thus deprived of any particles of saline matter which may be mechanically suspended in it.

Dr. Ferrius recommended the placing of the crystals of tartaric acid at the bottom of the vessel, under the bicarbonate of soda, as the carbonic acid being disengaged from the surface of the crystals, keeps the carbonate of soda in a state of agitation, and thus promotes its solution. A regular and abundant disengagement of gas is thus insured. If the bicarbonate of soda be at the bottom of the vessel beneath the acid, the spontaneous disengagement of gas becomes suspended much sooner, and more frequent agitation of the vessel is rendered necessary.

Application of Carbonic Acid charged with the vapor of Chloroform or other volatile liquid.—The sponge occupying the upper part of the tin tube is intended to be used in cases such as are here contemplated.

Hardy, of Dublin, has employed with success the vapor of chloroform for producing local insensibility, and for applying it he has contrived a very ingenious apparatus.

The experiments of Hardy have been repeated by Dubois, Figuier, Aran, Jules Roux, &c. In Hardy's apparatus the chloroform is conveyed in a cur-

rent of air, the presence of which must be objectionable. Dr. Fordos thinks it preferable to substitute carbonic acid for air, and that the simultaneous use of two substances possessing anæsthetic properties, chloroform and carbonic acid, would produce insensibility more promptly and surely. The experiments that have been made in this way have proved highly satisfactory.

In order to charge the carbonic acid with the vapor of chloroform, a drachm or a drachm and a half of chloroform is to be poured over the sponge contained in the tin tube.

Application of Hydrogen charged with the vapor of Chloroform.—The same apparatus may be used for applying hydrogen gas charged with anæsthetic or medicinal vapors. It is only necessary in this case to substitute for the tartaric acid and bicarbonate of soda some pieces of zinc and dilute sulphuric acid.

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HALF-YEARLY ABSTRACT
OF THE
MEDICAL SCIENCES.

JULY—DECEMBER,

1859.

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OF THE
MEDICAL SCIENCES:

BEING

A PRACTICAL AND ANALYTICAL DIGEST OF THE CONTENTS OF THE PRINCIPAL BRITISH AND CONTINENTAL MEDICAL WORKS PUBLISHED IN THE PRECEDING SIX MONTHS.

TOGETHER WITH

A SERIES OF CRITICAL REPORTS ON THE PROGRESS OF MEDICINE AND THE COLLATERAL SCIENCES DURING THE SAME PERIOD.

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Apparatu nobis opus est, et rebus exquisitis undique et collectis, arcescitis, comportatis.
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ABSTRACT OF THE MEDICAL SCIENCES,

&c. &c.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

SECT. I.—GENERAL QUESTIONS IN MEDICINE.

(A) HYGIENE.

ART. 1.—*The estimation of the Organic Matter of the Air.*

By Dr. ROBERT AGNUS SMITH.

(*Medical Times and Gazette*, May 28, 1859.)

AFTER referring to the opinions concerning organic matter in the air, and the various attempts made to estimate the amount, Dr. Smith describes a method of obtaining the relative quantity by means of mineral chameleon or permanganate of potash or soda. This mineral, originally proposed by Forchhammer as a means of estimating the organic matter in water, is now found to be capable of detecting the more minute quantities of organic matter present in air. At first the air was passed through the solution of chameleon, but this was not found to cause complete action. It was necessary that the air should remain for some time in contact with the solution to be decomposed. It was then ascertained that the relative amount of organic and other oxidizable matter in air could be found by a simple metrical experiment in a few minutes. Dr. Smith then says: "In working out this idea, it has been found that a vessel of the capacity of 80 to 100 cubic inches is the most convenient. This is equal to rather less than a quart and a half and rather more than a litre and a half. The solution of chameleon used must be extremely weak, so that small quantities cannot readily be distinguished by daylight. 600 grains of it are required to decompose 5 grains of a standard solution of oxalic acid. The standard solution of oxalic acid is so made that 1000 grains neutralize one grain of carbonate of soda. A thousand grains contain, therefore, 1184 grains of crystallized oxalic acid. To prepare the solution a manganate was formed by heating nitrate and carbonate of soda and manganese, assisted by a little chloride of potash. There was the most minute trace of nitrate remaining in the solution. Perhaps chloride of potash would have been better, but I had no idea at the time of the difficulty afterwards found in obtaining the same quality. A solution of this manganate was made in pure water, and carbonic acid passed through until a reddish purple shade was obtained. It was then tested by oxalic acid, adding three or four drops of pure sulphuric acid. The purest water obtainable was added to dilute it to the proper amount. This often failed; and I have sometimes for a whole week failed to obtain the proper solution. Although I call it permanganate, it is not entirely so; it is a mixture of manganate and permanganate. A permanganate of the strength described has a dingy appearance and an uncertain color. I do not doubt that a pure permanganate of a suitable strength may be obtained pleasant to work with. There is some difficulty in obtaining pure water for preparing the solution. If allowed to stand for some time with a manganate it becomes purified. The solution of chameleon is apt to change, although

slowly, even when it is hermetically sealed in a glass tube. The solution described had become nearly colorless when sealed up hermetically for about three months. It is found readily to change when it is exposed to air by frequent removal of the stopper of the bottle containing it. Its strength must be tested occasionally; and if it differs from the standard, a calculation must be made for its reduction. The strength of the permanganate solution is extremely small. A few grains of the ordinary solutions of manganate used will make some thousand grains of the solution here employed. The reason of this lies in the extremely small amounts of organic matter found even in the worst air. The vessel used is simply a bottle, with a perforated stopper, through which pass two tubes. To one of these a stopcock is attached, to the other a clamp or stopcock. The standard size proposed is 100 cubic inches; and to this all the experiments have been reduced; the vessels actually used contain between 80 and 100 cubic inches of air. The stopcock is of glass, or of hard caoutchouc, which is still better. When the bottle is to be filled with the air to be tested, the stopper is removed, and the pipe of an exhausting pump is inserted, reaching to the bottom of the bottle. The pump is made like a cylindrical bellows, of about eight inches long when stretched out, and about four in diameter, and is compressible into the thickness of about two inches. The sides are made of thin Mackintosh cloth. By the use of the pump the air of the vessel is removed, and the external air of course enters. A few strokes of the pump are sufficient, i. e. from six to ten. After ten strokes I perceived no change, and am inclined to think it is an unnecessary number. The test-liquid is poured into a graduated tube or burette, containing somewhat more than will be required. A portion is then poured into the tube which passes through the stopper, and the stopcock is opened to allow it to pass. Small quantities are used; when it has entered the bottle, the liquid is made to spread over the sides, and time given it to be exposed to the action of the air; it is found that in five or six minutes a decided epoch is attained from which to date the comparative action. In order to see the color the liquid must be allowed to trickle down the sides of the vessel, and collect itself at one point of the circumference at either end of the cylindrical part of the bottle. This part must be raised up to the level of the eye, so that the longest axis may be presented to the sight, and thereby the deepest shade of color. It requires some time to accustom one's self to the sight of such a small amount of color; but when it is once well observed, it will be found to be a method which will admit of the greatest precision. The first few drops which are poured in will probably be decolorized at once; a few drops more must then be added; if they become decolorized, a few more must be used; and so on until there is a perceptible amount of color remaining. When this occurs, the experiment is concluded. The amount of the reagent used is then read off from the graduated measure. If the liquid be of the proper strength, and the bottle the required size, the number of grains gives the comparative quantity at once. Sometimes the amount of organic matter is so small that there is no appreciable action, or even the smallest amount of solution by one vessel of air. In this case it is necessary to fill the bottle several times. The mode of doing this is apparently extremely rude, but the results are such as not to demand a finer method at present. A finer method, of course, would need little ingenuity to contrive. At present I merely remove the stopper and fill again with air as before. During the period of filling the vessel the surface of the liquid is reduced to the smallest amount, and the change it undergoes is either inappreciable, or so constant as not to affect the results. In analyzing the air, in this manner, it is found that a decided result is attained in about five minutes. Sometimes the result is decided in one; that is, there is a termination to the rapid action. This peculiarity is probably to be explained by the following experiments. If we pour decomposing matter on the permanganate solution, it is rapidly destroyed. If the matter be not in a state of decomposition the action is much slower. These different results promise a mode of dividing the organic matter of the air into classes according to its quality. These facts are mentioned merely as germs of a future inquiry. In large towns where coals, containing much sulphur, are burnt, the sulphurous acid takes the oxygen of the chameleon,

and an apparently large amount of organic matter results. This sulphurous acid is of itself an impurity, perhaps as hurtful as some kinds of organic matter. We measure by this means the amount of oxygen needful for the oxidizable matter of the atmosphere, and all such matter is impurity, in some places entirely organic, in others, such as towns, mixed with inorganic gases. Some of the principal results obtained by this method were as follows:—

*Relative Quantities of Organic and other Oxidizable Matter in the Air of**

Manchester (average of 131 experiments)	52.9
“ All Saints, E. wind (67 experiments)	52.4
“ “ W. wind, less smoky (33 experiments)	49.1
“ “ E. wind, above 70° Fahr. (16 experiments)	58.4
“ “ below “ (21 experiments)	48.0
“ In a house kept rather close	60.7
In a pigsty uncovered	109.7
Thames at City, no odor perceived after the warmest weather of 1858	58.4
Thames at Lambeth	43.2
“ Waterloo Bridge	43.2
London in warm weather (6 experiments)	29.2
“ after a thunderstorm	12.3
In the fields S. of Manchester	13.7
“ N. of Highgate, wind from London	12.3
Fields during warm weather in N. Italy	6.6
Moist fields near Milan	18.1
Open sea, calm (German Ocean, 60 miles from Yarmouth)	3.3
Hospice of St. Bernard, in a fog	2.8
N. Lancashire	about same
Forest at Chamouni	2.8
Lake Lucerne	1.4

The first experiments undertaken were in Manchester, and the average amount obtained was about 50, gradually diminishing in moving towards the country, until it was found in the fields at 13; on passing a sewer stream about a mile from the outskirts, the amount rose to 83. The atmosphere on the Thames was not measured while at its worst, but immediately afterwards, when, however, it had ceased to affect the senses of most persons at least, the amount was very high, viz. 58. I was anxious to know how far the Thames affected the atmosphere of London, and tried some experiments; the result was that the influence appeared to cease almost immediately; the fact of a block of houses standing in the way was enough to prevent the influence; when at the worst this may not have been the case; to arrive at the other side of the block, the vapor would generally require to rise high, so that it would become mixed with a great deal of air. The amount obtained in a few trials in the streets of London was 22 to 34; going on to Highgate, the number sank from 33 to 24; on descending the north side of Highgate Hill a distinct change was perceived, the numbers being 18; the wind meantime was blowing from the city; the few experiments made in the fields in summer gave 10 to 12. The numbers 6 to 18 were obtained in Switzerland and Lombardy. The moist fields round Milan gave 18; when the water passes off the rice fields, producing the unhealthy season, I do not doubt that the amount will be much higher. It was not convenient for me to stay, nor to go further to places distinctly infected with malaria. I was desirous of trying it in some of the hovels of the Vallois and the Val d'Aosta; but the weather being fine, and the people living much out of doors, the inquiry was not encouraging. The few experiments made did not give very striking results, whereas the lower parts of our own towns gave results most decided; I imagine the cause of this to be that a drier air does not allow the offensive matter to rise so steadily. This fact has many ramifications, but it will explain several difficulties in our sanitary science. It is with the

* A few of these results were published in the *Athenæum* during last summer. The present numbers are somewhat higher, being reduced, for the sake of uniformity, to correspond to a vessel of 100 cubic inches.

assistance of moisture that the organic matter is conveyed into the air. Moisture itself, as may be supposed, does not produce any action on the test; one of the lowest numbers obtained was on the German Ocean, about sixty miles from land; the day was calm and clear. In the Straits of Dover, when the wind was blowing briskly from the German Sea, the amount obtained was very high; but as there was a slight spray the experiments were disregarded. About 8000 feet high on the Alps, a dense fog showed also one of the smallest amounts obtained; the ground was entirely bare rock, and could not give out organic matter. The amount was 2.8. The influence of height was very decided; in the higher grounds of Lancashire, near Preston, the numbers being from 2 to 4. A wind blowing down from the Mer-de-Glace gave rather more than at a lower point, although coming down the hill; a dry pine forest in the neighborhood, although very fragrant, did not appear to raise the number. The influence of the sea and of height seem equally decided; a few hasty experiments made in the hothouses at Kew led me to believe that there was less increase there than might have been expected, the amount obtained being less than in London, but more than outside the houses, where it was cooler. At the same time weeks or months should be given, when only hours were allowed for the experiments. The influence of heat appears to me to increase the amount, when there is moisture present. The influence of dryness seems to be towards diminishing the amount. The influence of great cold has not been tried yet. The influence of rain in hot weather, to some extent of course a cooling influence, but chiefly a means of washing the air, seems most decided. After a thunderstorm and shower at Camden Square, the number, which was previously 31 fell to 12. The influence of our towns, especially our smoky towns, is most decided also; it is easy to tell by this test, when in the outskirts of a town, whether the wind is blowing from the town or the country. A distinct difference was always found between the front and back of Manchester houses; a similar difference obtained when a room had been inhabited for some time, and the difference was of course very marked when the smell of a sewer came into the house. I had a good opportunity of observing this in my laboratory last year. It must be remembered that the numbers given for some places were obtained on one day of the year only, and we must be careful not to draw too many conclusions; we have yet to learn what kind of organic matter is wholesome and what is unwholesome. I believe that this is the next great point to be attended to; at present we are only becoming able to ascertain the gross amount. I feel this caution to be needful, lest the numbers should be used to prove too much. At an early opportunity all the experiments made will be published; but we may already see the range of the action of this test to be so great as to make it promise to be of some practical as well as scientific value. Dr. Southwood Smith has observed that the facts on which sanitary economy is built are exceeding difficult of comprehension by a large number of people, because the cause of the evil cannot be brought directly under observation: if, however, any plan were invented of showing that these dreaded emanations existed even when the senses could not perceive them, belief would be easily gained, and the requisite carefulness would then take place. If the method explained be found to be no more valuable than this, it will at least not be reckoned among useless discoveries. We may hope, however, that it will be found to prove not only that much of that which we have already known is true, but that many other now hidden things are true also; we may find that every wind will have attached to it its mark of unwholesomeness with respect to this test, and that every season also will have its co-efficient. It may also be found that changes of season or of condition of the air will be ascertained with much more certainty, delicacy, and rapidity than now. We may even hope to find some premonitory symptoms of disease in the atmosphere before it affects the human body; the exciting cause itself existing long before it has been able to take effect, so that useful precautions may be made in time, and an efficient defence prepared. At the same time no proof whatever has yet been given that a plague or any infectious disease can be estimated by it, although reason has been given for such an expectation, while the air over different fields differs enough to promise some knowledge of miasm. But what is abundantly esta-

blished and made clear to the eye is that the air of our large cities is sufficiently impure to account for much of their unhealthiness, and the air of our hills and seas and lakes sufficiently pure to account for its salubrity. It is to be hoped that greater consequences will follow in proper time: although this itself was needed to set at rest some questions which have cooled the enthusiasm of many in the cause of sanitary reform."

ART. 2.—*On Prison Dietary.* By Dr. EDWARD SMITH, Assistant-Physician to the Hospital for Consumption at Brompton.

(*Dublin Quarterly Journal of Medicine*, May, 1869.)

In the English gaols, there is a different dietary for county prisoners and for convicts, the latter being usually much in excess of the former. The government has provided a scheme for county prisoners, but has not compelled the magistrates to adopt it; so that, in one half of these gaols, there is still no uniform scheme of dietary. The author's attention has been chiefly directed to the government scheme, and he considers it to be based upon wrong principles, and unjust in its details. Increase of food with duration of imprisonment is unnecessary, provided the prisoners are supplied with sufficient food from the commencement. Variation in the quantity of nutriment from day to day (the conditions being unchanged) is absurd; and the allowance of one pint of soup per week, as a distinction between no labor and hard labor, is manifestly ridiculous.

The chief defects in the existing scheme are, the deficiency of food in short, and excess of food in long imprisonments; and the apportionment of one, and that an insufficient, amount of food to all kinds of hard labor. It is upon these two points that Dr. Smith has prosecuted a series of experiments.

In the existing scheme, the amount of food supplied varies through five classes from one pound of bread and four ounces of oatmeal daily for the shortest sentences, to twenty-two ounces of bread and one pound of potatoes daily, four ounces of oatmeal four times and two ounces thrice per week, a pint of cocoa thrice per week, with four ounces of cooked meat without bone four times, and three ounces thrice per week, in the sentences of four months and upwards.

Dr. Smith adopts the dictum of Sir James Graham, in his letter of instructions to the Commissioners, that the dietary shall not be made an instrument of punishment; and proceeds to state what is the true amount of food required under different circumstances. He discards the basis of duration of imprisonment, and adopts that of the degree of labor enforced. He suggests that four classes should be established—1. For all cases without labor; 2. Those with light labor, as in ordinary manufactures and trades; 3. In the heavy manufactures, as weaving wide widths of cocoa-matting, and with the use of the lighter cranks and shot-drill; and 4. With the full pressure of the crank and the treadwheel labor.

In the first classes, he has found, as the result of eight experiments, that eight ounces of carbon and two hundred grains of nitrogen are lost by the system daily (he has not yet determined the amount of hydrogen consumed; and that, in the other classes, the addition is one-fifth, three-fifths, and four-fifths of that quantity, respectively. From this he has deduced the amount of food which must be supplied to meet this waste; and, taking bread and cheese as offering a good basis for comparison, the quantities required in the four classes are as follows:—

1. In rest, twenty-three ounces of bread and two ounces and a quarter of cheese.

2. With light trades, twenty-seven ounces and a half of bread and three ounces of cheese.

3. With heavy trades and light crank labor, thirty-six ounces and three-quarters of bread and four ounces of cheese.

4. With full treadwheel and crank labor, forty-one ounces and a half of bread and four ounces and a half of cheese.

On this plan, a dietary is provided which meets the wants of each man sepa-

rately, and which is adapted to every prison, notwithstanding the extraordinary diversity which, in a former paper, printed in the *Transactions of the Association for the Promotion of Social Science*, and in the *Philanthropist*, 1858, he has proved to exist in prison discipline.

Dr. Smith states the proportion which other ordinary articles of food bear to bread and cheese, so as to enable any one to vary the kind of food, and yet retain the due proportion of nutritive elements. This is given in the following table, chiefly compiled from Playfair's data, which show the proportion of carbon contained in various articles of food, as compared with that in ten parts of bread, the quantity of nitrogen contained in each ounce avoirdupois, and the cost per pound at contract prices.

	Parts of various substances equal in carbon to 10 parts of fresh bread.	Nitrogen in each oz. Grains.	Cost per lb. October, 1858.	
			a.	d.
Bread		53		1½
Wheat flour	8	73		1½
Pens	8	153		1½
Rice	8	41		1½
Oatmeal	7½	81		1½
Scotch barley	—	—		1½
Molasses	—	—		2
Meat (fresh)	10	83		4½
Cocoa	5	83	1	1½
Potato	1	11		3
Suet or butter	4½	—		
Sugar	7½	—		4½
Indian corn	7½	73		
Cheese	8	194		6

This table is equally applicable to workhouse dietary.

Dr. Smith then describes the influence of certain modifying circumstances, determined in part by his own labors, and in part by the observations of Mr. Milner, surgeon to the Wakefield County Gaol, given in a paper read before the British Association, and published in the *Sanitary Review*. These are, age, sex, size, season, conformation, and employment. Mr. Milner has shown, in reference to age, that a dietary better than that of the highest class in county prisons was excessive in old age, whilst it was insufficient to maintain the due growth of the body at the age of seventeen. Persons of unusual height, and of a girth of thirty-four inches and upwards, lost weight in a rapidly increasing ratio. The duration of imprisonment had no marked influence. In reference to the waste of carbon by the treadwheel labor, Dr. Smith has proved that, with a quarter of an hour's work, the increase over that of the state of rest was more than five times; and, with alternations of work and rest during seven hours and a half, it was three times.

In reference to seasons, Dr. Smith has proved that the system is at its lowest state of vital action at the end of summer; and Mr. Milner has shown that his prisoners gain weight from May to September, and lose during the other months.

The general regulations recommended by the author, are as follows —

1. The supply of food must meet the wants of the system.
2. Variations in quantity of nutriment with duration of imprisonment, and from day to day, are unnecessary; provided the quantity at first supplied be suited to the wants of the system.
3. Growing persons must have a sufficient excess of food to maintain the development of the system, whilst to old persons less food may be supplied. Persons of unusual size demand an increased supply of food.
4. From December to April, both inclusive, the quantity of food should be one-sixth greater than during the other months.
5. The supply must vary day by day with the labor exacted. The breakfast should be as good a meal as the dinner, and especially with hard labor; and the treadwheel should not be worked before breakfast.

6. With hard labor, the meals should not be too bulky, so as to impede respiration.

7. Other things being equal, the cheapest articles should be preferred: and hence potato should be supplied more sparingly, and peas more plentifully. Dr. Smith commends the use of unsifted flour, ground and made into bread, under efficient superintendence, in the prison.

ART. 3.—*The salutary effects of Sunflowers in marshy localities.*

By Lieutenant MAURY.

(*Courier des Etats-Unis*, No. 20, 1859; and *Gaz. Heb.*, July 22, 1859.)

The neighborhood of the observatory at Washington presents all the conditions most suitable to the production of the worst forms of malarious fevers. The observatory itself is a very unhealthy place of residence, being but little raised above the water of the neighboring river. It is, indeed, in the midst of a district which is no better than a swamp. Noticing that the malarious fevers made their appearance at the time when the marsh vegetation passes into a state of decay, Lieutenant Maury proposed to supply the place of this vegetation by plants which will be in flower at this time, and which will have the effect of absorbing and appropriating the noxious emanations. For this purpose he chose sunflowers, the remarkable power of which, in absorbing water, is well known. He had a wide district around the observatory plentifully sowed with the seeds of this plant. In due time the month of August came round—the unhealthy season *par excellence*—the seeds had issued in a plentiful crop of plants, and the fevers, which had appeared regularly ever since the foundation of the observatory, did not make their appearance.

ART. 4.—*On the action of Hard Water upon Lead.* Dr. LANDER LINDSAY.

(*Edinburgh New Philos. Journal*, April, 1859.)

It is, and has long been, currently believed—1. That where there is free access of atmospheric air, pure or soft waters—that is, waters absolutely or comparatively free from saline ingredients—readily corrode lead, and become impregnated, sometimes to a poisonous degree, with some of the salts thereof. 2. That the rapidity and extent of this solvent or corrosive action are proportionate to the purity of the water—that is, its freedom from neutral salts. 3. That impure or hard waters—that is, waters containing a considerable amount of neutral salts—do not so affect or become impregnated with lead. 4. That such waters are prevented from acting on lead by, or in virtue of, their saline constituents, which exert a sort of protective or preservative power in regard to the lead. 5. That if a given water does not, within a short period, cause a white coating on freshly burnished lead plates or rods, it may be regarded as destitute of any corrosive action, and may therefore be safely allowed to be kept in leaden cisterns, and transmitted through leaden pipes.

Observation, experiment, and inquiry have led Dr. Lindsay to the following somewhat opposite conclusions: 1. That certain pure or soft waters *do not* act upon lead. 2. That certain impure or hard waters, in some cases containing abundance of the very salts which are generally regarded as most protective or preservative, *do act* upon lead.

In reference to the first proposition, that certain comparatively pure, or what are usually considered soft, waters *do not* act on lead, it may be mentioned that Professor Christison found rain-water collected on his own house in Edinburgh to be devoid of any corrosive action, a circumstance which he attributes to the presence of alkaline sulphates and chlorides. Again, Professors Graham, Hoffman, and Müller, who some time ago conducted a government investigation into the action of waters on lead, with a view to discover "whether any comparative inconvenience would arise from a supply of soft water to the metropolis," contrary to what might have been expected, assert that, "with one exception, neither the soft waters of the Surrey Hills, which have a hardness of only two degrees, nor spring water artificially softened to three degrees of hardness, have any perceptible action on lead. The idea that soft waters invariably act

upon lead seems to have its origin in the fact that certain specimens of distilled water, placed in contact with a large surface of bright sheet lead, dissolve as much as six or eight grains of the metal to the gallon." Dr. Medlock asserts that "perfectly neutral and pure" distilled water, from which nitrate of ammonia has been expelled, has no action upon lead; for in a gallon of this water, allowed to remain in contact with 500 square inches of lead for forty-eight hours, no trace of lead could be discovered.

The second proposition may be illustrated more easily and fully. The illustrations which have presented themselves to Dr. Lindsay's notice have been chiefly of the two following kinds: 1. Corrosion, or erosion, to such an extent as to cause leakage of cisterns by waters of various degrees and kinds of hardness, or containing various kinds and amounts of neutral salts. 2. The poisonous action of hard or hardish waters impregnated with lead on the human body.

It is needless to multiply instances: two or three must here suffice; but they will probably serve to recall to the memory of many of my readers parallel illustrations. My attention was specially called to the erosion of lead cisterns by spring or well waters about two years ago, by my being requested to examine some cisterns, the bottom lining of which had been repeatedly eroded to the extent of causing leakage, and which had been as repeatedly repaired. These cisterns contained the water supply of a large public institution of which I am the physician. The institution is supplied with water from three different sources, viz: 1. Rain water from the roof; 2. Spring water; and 3. Surface water. With the first I have here nothing to do; it is in reference to the second especially, and also subordinately to the third, that my remarks apply. The spring water is from a deep well on the northern declivity of Kinnoull Hill, penetrating the Old Red Sandstone near where the trap protrudes through it. The water rises in the well to the height of twenty-eight feet. It is good, hard, drinking water, and is used in the institution for drinking, as well as for culinary purposes. The surface water is chiefly rain water, which percolates through the soil, and is collected in a large tank holding 95,156 gallons. This water is used chiefly for baths, water-closets, and general cleaning processes. The cisterns have no covers; they are contained in the attics of the building, but are not exposed directly to the external air. My attention was first directed to the cistern containing the spring water. I found the leaden bottom of this cistern scooped out here and there into a series of cavities or holes, some of which were minute perforations allowing of an escape of the water. Moreover, the bottom was covered by a pretty thick layer or coating of a heavy cream-yellow, putty-like matter, which also filled the cavities or holes above referred to. The cistern was comparatively new. I was told it had been repeatedly thus eroded, and as frequently repaired. But it would appear that the mode of repair had been mere soldering; and this it is of great importance to bear in mind, inasmuch as I believe this mode of repair to have been the cause of the subsequent more rapid erosion. It has now been abundantly proved that galvanic action occurs in a leaden cistern holding water, at the point of contact of the lead with other metals, whether these be in the form of solder or of iron bars, &c.; that this galvanic action is extremely favorable to corrosion; and that it is greatest in waters containing saline matters—that is, precisely in circumstances in which, were there no galvanic action the corrosive effect of the water would be least. Similar phenomena had been repeatedly observed in cisterns containing the surface water; and the leakage of these cisterns became a matter of some moment, not only from the expense of constant repairs in comparatively new cisterns, but also from the damage done to roofs and walls of apartments situated below the attics by the escaped water. Facts bear out what theory would lead us to conclude, that the newer the cistern, the more rapid and energetic is the corrosive action of the water on it.

I was naturally led to make an analysis (a rough and qualitative one only, however), with a view to discover precisely the circumstances under which this corrosive action took place. This analysis embraced—1. The deposit on the bottom of the cistern; 2. The supernatant water in the cistern; and 3. The spring water, as drawn from the well before it had traversed iron pipes, or been

contained in leaden cisterns. The results were as follows: The deposit contained carbonates, sulphates, and chlorides of lead, lime, and magnesia; iron in abundance; and faint traces of soda. The supernatant water contained the sulphates, carbonates, and chlorides of lime and magnesia, with traces of soda. The carbonates and chlorides were most abundant—the sulphates less so; lime was plentiful; magnesia was in small quantity. There was no lead; and this is of importance to bear in mind; for it frequently happens that, though lead is found abundantly in the deposit on the bottom of such a cistern, it cannot be detected readily, or at all, in the supernatant fluid. Nor did this water contain distinct traces of iron. The spring water, as drawn directly from the well, contained the same salts of lime, magnesia, and soda, in similar proportion, without lead or iron. The iron found in the cistern-deposit was probably dissolved as oxide by the water as it passed through the iron pipes which convey it from the well to the Institution; but it may also partly have been derived from the soil. A more careful analysis would probably, however, have detected it in the water of the cistern, and possibly in the water drawn directly from the well, being, in the latter case, derived from the iron apparatus of the pump. In distrustful of my own analysis, I had it repeated more carefully by a friend in Edinburgh. His results were entirely corroborative of my own more rough and hasty essays. The lead in the deposit was by him converted into sulphate, with a view to ascertain its quantity. Calculating from the weight of the sulphate thus obtained, the deposit was found to contain no less than 43.18 per cent. of lead—a large amount, to account for which it is right to mention that, in scraping the deposit from the bottom of the cistern, minute portions of metallic lead had been probably included.

"Now, the water in question curdles soap with great rapidity and ease, and is therefore decidedly *hard*. But, in considering the action of water on lead, it is important to remark the nature or kind, as well as the amount, of the neutral salts present in it. The carbonates and chlorides were much more abundant than the sulphates, while lime was plentiful, and magnesia and soda occurred only in small quantity. The water of Airthrey Well, Bridge of Allan, for instance, is said to possess no action on lead; yet it contains no less than $\frac{1}{4}$ part of its weight of salts, which are chiefly sulphates and chlorides. The experiments of Professors Christison and Taylor, and others, have established that the sulphates and carbonates are among the most protective or preservative salts, while the chlorides are among the least so. There is a difference of opinion among observers as to whether the carbonates or sulphates of lime and magnesia are most strongly protective; but there is no doubt that the sulphate of lime is a powerfully protective salt, while it is also one of the most common ingredients of hard waters. According to Professor Taylor, sulphate of lime is the salt occurring in hard waters, which chiefly prevents their corrosive action on lead; and he describes the coating deposited on the lead as consisting of the sulphate of lead. The results of Professor Christison, as well as a consideration of the chemical theory of the action, would lead to the suspicion that the latter statement is not quite accurate; for it is extremely probable, that not only sulphate, but also the carbonate and hydrated oxide of lead, will at least be found in such deposits. Professor Taylor deduces from his investigations, that a water containing sulphates and lime is not likely to corrode or become contaminated with, lead, and may therefore be safely used for drinking and cooking."

ART. 5.—*On the relations between Diet and external cold.*

By Dr. ISAAC J. HAYES, late Surgeon to the Second U. S. Arctic Expedition.

(*Amer. Journ. of Med. Sciences*, July, 1859.)

After some graphic remarks upon the habits and mode of life of a tribe of wandering Esquimaux, Dr. Hayes proceeds to say: "Living virtually without fire, most meagrely dressed, dependent at the same time upon the hunt for every necessary of life, and almost daily exposed, in the pursuit of game, to the very lowest temperature, we are astonished at their complete indifference to the cold; not only do they seem indifferent to it as far as concerns their

physical comfort, but they are able to resist all of its depressing influences. They are a strong, robust, and healthy race. Scurvy is unknown amongst them, and I have never known or heard of an instance of tubercular disease.

"I think you will agree with me in what was stated in the outset, namely, that we must look for an explanation of this wonderful power of resistance in the quality and quantity of the food consumed. They subsist entirely upon animal food; the flesh, mainly, of the walrus, seal, narwhal, and bear, and the quantity which they eat seems really enormous. I have frequently seen an Esquimaux hunter, when preparing for the hunt, eat from six to twelve pounds of meat, about one-third of which was fat, and I should place the daily consumption of the men at from twelve to fifteen pounds; and, in this large consumption, they find their shield against the cold. The food is mostly taken raw, and in their long journeys they stop from time to time, unlash their sledges, and cutting off strips of frozen blubber eat them with apparent relish. I do not believe that they could live upon a vegetable diet.

"The same laws govern the Esquimaux and white men, and just in proportion as we of the Advance accustomed ourselves to the diet of the Esquimaux did we gain power to expose ourselves with impunity to low temperatures. We found ourselves continually craving animal food, and especially fatty substances, which, to us in these latitudes, would be exceedingly distasteful. Frozen blubber became quite palatable, and during the second winter, when the temperature of the cabin was rarely above 45°, and often as low as zero, it was found necessary by Dr. Kane, in order to protect his men against the bad effects of the salt, to guard the slush barrels by the strictest orders.

"The process of acclimation with us was gradual. I remember well how, in the autumn of 1853, we suffered intensely from temperature which a year later produced no impression whatever upon us, and I am satisfied that this increased power of resistance was in direct proportion to our ability to eat and digest animal food. During a later period of the cruise, some of the party lived precisely the life of the Esquimaux during three winter months, entirely without fire for purposes of warmth, without suffering any serious inconvenience or discomfort from the low temperatures.

"It is worthy of more than the mere passing remark, that the climate is one of unusual healthfulness, and that scurvy and phthisis are unknown amongst the natives. In relation to the last mentioned disease, I give the fact without comment or opinion; with regard to the former, I will remark that whenever it has occurred in vessels visiting the Arctic seas it has been mainly owing to accidental causes which experience has taught us to avoid. These are: salt food, cold, and the darkness of the long winter night, with the depressing moral and physical influences which it carries in its train, and, as an occasional exasperating cause, excessive exertion.

"For the use of a salt diet there is now no necessity, and if we bear in mind the fact that wherever the crews of vessels wintering in the Arctic seas have been attacked with scurvy, they have subsisted invariably upon such a diet, we will at once perceive how all the above-mentioned causes of its development operate together to produce disease. In the first place, the salt meat is injurious in itself, and will not, in any climate, sustain the human body in health; and, in the second place, if it could be taken with impunity, so far as the salt is concerned, a sufficient quantity of it could not be eaten or digested to enable the system to ward off the depressing influences of the cold and the darkness. With a good and unlimited supply of rich fresh animal food, these last-mentioned causes either have no actual existence, or are easily avoided. The cold only becomes a predisposing cause of disease, when the vital forces are not sustained by proper alimentation. The same may be said of the darkness, although there is, doubtless, a cause independently operating upon man as upon plants placed under similar circumstances; yet rich food, plenty of water, exercise, good ventilation, even at the expense of temperature, and last but not least, a healthy, cheerful tone, will, in every case, counteract the ill effects of the long-continued darkness.

"A most singular effect of the use of salt food was observed among the dogs. These animals had never been accustomed to such a diet. They could not eat

it except in small quantities, and the salt of the meat, the cold and darkness, operating together upon their feeble bodies, developed a singular *epileptotetanic* disease, which ultimately destroyed nearly every animal which Dr. Kane took with him from Southern Greenland, or afterwards procured from the natives of Smith's Strait. The same was, from time to time, observable among the men, and, doubtless, for the same reason.

"I have stated that the natives for the most part eat their meat raw, and having availed myself of the knowledge of this fact to great advantage, I would suggest it to my brethren of the profession. I have frequently found that when the stomachs of very scorbutic patients refused cooked meats, that they could readily retain the uncooked flesh if frozen, or, as our men expressed it, 'cooked with frost,' and in this state it seemed to antagonize more immediately the scorbutic condition. The operation of freezing destroyed entirely the repulsiveness of the raw flesh, and the walrus and seal meat which was found best suited to their wants, was very generally thus preferred by the sick. They often relished it, especially if acidulated with a little vinegar or lime-juice, when they could take nothing else.

"While fresh animal food, and especially fat, is absolutely essential to the inhabitants and travellers in Arctic countries, alcohol is in almost any shape not only completely useless, but positively injurious; and in this view I am fully sustained by the well-qualified judgment and experience of our enterprising and indefatigable friend, Dr. Rae, whom we had the pleasure, not long since, of welcoming to the Academy. So well am I convinced of this fact, that, in the expedition now organizing to the Arctic seas, I shall not only not give it habitually, but will carefully guard against taking any one with me who is addicted to its use. Circumstances may occur under which its administration seems necessary; such, for instance, as great prostration, from long-continued exposure and exertion, or from getting wet; but then it should be avoided, if possible, for the succeeding reaction is always to be dreaded; and, if a place of safety is not near at hand, the immediate danger is only temporarily guarded against, and becomes, finally, greatly augmented by reason of decreased vitality. If given at all, it should be in very small quantities frequently repeated, and continued until a place of safety is reached. I have known most unpleasant consequences to result from the injudicious use of whiskey for the purpose of temporary stimulation, and have also known strong able-bodied men to have become utterly incapable of resisting cold in consequence of the long-continued use of alcoholic drinks. I do not believe that it has a single useful property not possessed in a tenfold degree by other stimulants; and under this head I rank tea and coffee. So valuable are both of these that I am at a loss to say which is best. The English Arctic explorers almost invariably use tea, and so do the Russians; but Dr. Kane's parties, after repeated trial, took most kindly to coffee in the morning and tea in the evening. The coffee seemed to last through the day, and the men seemed to grow hungry less rapidly after taking it than after drinking tea, while tea soothed them after a day's hard labor, and the better enabled them to sleep. They both operated upon fatigued and overtaken men like a charm, and their superiority over alcoholic stimulants was very marked. The virtue of coffee used under the above-mentioned circumstances I cannot over-praise, the only drawback to its frequent administration being the difficulty of preparing it when the atmospheric temperature is low and the traveller is obliged to depend upon a lamp with which to melt and boil his water."

ART. G.—*Tar and Plaster as a disinfecting application.*
By M. M. CORNE and DEWACK.

(Comptes Rendus, July 18 and 25, 1859.)

This application, which is a powder, is made by triturating from 1 to 5 parts of common coal-tar with 100 parts of plaster. It is applied by sprinkling it over the suppurating wound in the form of powder, or else the powder is made into ointment by mixing it with oil. In either way, but particularly as powder, the discharge is deodorized, and at the same time absorbed, the tar seeming to

be the chief agent in the first part of the process. In one of the experiments at La Charité, under M. Velpeau, a gangrenous wound, discharging profusely, immediately ceased to be offensive under the free application of the powder. There appears every reason to believe that the mixture in question will be of much use in various sanitary as well as surgical matters, for it is cheap as well as efficacious; but there does not appear to be sufficient ground to laud its discovery in such high terms as were used by M. Velpeau in introducing it to the notice of the French Academy of Sciences. MM. Corne and Demaux brought the matter forward with the view chiefly of deodorizing the night-soil of Paris.

ART. 7.—On the Mortality of London during the last three months of 1858.

By Mr. J. J. Fox.

(*Medical Times and Gazette*, April 24, 1859)

I. Total mortality.

The deaths registered in the thirteen weeks ending January 1, 1859, were 17,688. Making the usual assumption for increase of population, this amounts to a mortality of 646 per 100,000. But the average rate for the autumn quarter, derived from the previous eighteen years, is 619. This autumn has therefore been $4\frac{1}{2}$ per cent. more fatal than usual. Of the previous eighteen autumns, no less than seven have exhibited a higher mortality—viz., 1840, 1843, 1844, 1847, 1848, 1853, and 1854: so that, unhealthy as this season of 1858 has been, compared with the average and many healthy autumns, yet its mortality is by no means exceptional.

II. Mortality from various diseases.

In dividing the mortality into its various classes, according to the causes that produce it, we find very great difference in the degree of their prevalence. The following numbers represent the percentage from certain diseases or classes of disease above or below the average mortality from the same causes in former autumns. Where diseases are well marked, the average of the previous eighteen autumns is used; but in the classes of disease, and where there is reason to apprehend an altered view in the Profession as regards diagnosis or nomenclature, it has been deemed safest to derive the average from only thirteen, or even ten, previous years.

The following present a mortality higher than the average:—

	Per Cent.
Scarlatina	128 above.
Bronchitis	74 "
Diseases of respiratory organs	33 "
Diseases of kidneys	26 "
Rheumatism	24 "
Croup	20 "
Teething	18 "
Measles	15½ "
Pneumonia	15 "
Disease of heart, &c.	13 "
Whooping-cough	10 "
Consumption	5 "
Paralysis	4½ "
Apoplexy	2½ "
Diseases of nervous system	1½ "

The following, on the contrary, have been below the average of former autumns:—

	Per Cent.
Hydrocephalus, cephalitis, and convulsions	0½ below.
Erysipelas	16 "
Typhus	19 "
Dysentery	35 "
Diarrhoea	47 "
Smallpox	54 "

These numbers suggest the following remarks:—

1. With regard to scarlatina, which, it must be recollected, includes deaths from diphtheria, the excess over the usual rate is very great. The only autumn in which a larger mortality from this cause is recorded, is 1848. It has been on the increase since the spring of 1857, when it was at its minimum point. The northern and eastern divisions of London have suffered most from it; and, with the exception of a solitary week at the end of November, it reached its maximum for this quarter in the month of October. In this respect it followed the same law as the average of ten years, showing that in this disease, extremes of temperature do but little to aggravate its intensity.

2. It is very different with the next cause on the list—bronchitis. This did not exceed the average at the beginning of the quarter, but rose gradually in October, and more rapidly as the cold weather of November set in. In the third week of November the cold was intense for the season, and, accordingly, it was in the following week that deaths from bronchitis reached a maximum. They decreased gradually from that point, but continued high throughout the month of December.

3. Measles, though more fatal than in the summer, are in reality declining, as they present a lower excess above the average of the season. They prevailed in the northern, and still more in the central division of London—the latter returning 32 per cent. of the deaths from measles, although its population may be estimated at about 15 per cent. of the whole.

4. The great mortality from diseases of the kidneys may, perhaps, be referred to the existence of the same mysterious atmospheric constitution that causes or accompanies the epidemic of scarlatina.

It must not be supposed to be made up by cases of renal disease, the sequela of scarlatina. Such cases come under the latter name. In them the mortality is almost limited to childhood, whereas that from renal disease preponderates in the middle and latter periods of life. Although, therefore, there is evidence of the coexistence of increased disease of the kidneys with a scarlatina epidemic, it is not easy to explain the connection between them.

5. In spite of the unhealthiness, the low mortality from typhus, dysentery, and diarrhoea is remarkable. It must be mentioned that the name typhus includes two, if not three separate diseases, one of which is closely related to diarrhoea in its seat, and probably in its causation. It is an interesting question whether the low mortality from these diseases is an accidental character of the season, due perhaps to some antagonism with the renal and scarlatinoid epidemic, or whether it is simply the result of improved sanitary condition, under the management of our Officers of Health.

III. *Meteorology of the autumn.*

The temperature of September was unusually high, and that of October rather above the average; but a rapid fall occurred in November, which was colder than has been known for many years. December was marked by great fluctuation; but on the whole its temperature exceeded the average.

The cold weather of November was accompanied by a great deal of easterly wind, which prevailed for six weeks from the third week of October to the fourth week of November. The break-up of the cold at the latter part of November was most sudden and trying to the human constitution.

The amount of rain through the quarter was very much less than usual; hardly any fell in September and November. So also the humidity of the air was less than the average in each month, except December.

The barometer was particularly high in October; in November it was chiefly remarkable for its wide range. The movement of the air was in excess in September and October; in November it was less than usual.

IV. *Comparative mortality of divisions of the metropolis.*

We saw, at the commencement of this paper, that the mortality in the whole of London (subject to error in estimating the increase of population) was at the rate of 646 per 100,000. The deaths in the several divisions, if examined

on the same principle and corrected for outlying workhouses, hospitals, prisons, and lunatic asylums, give the following mortality to each:—

Western Division	. . . . .	540
Southern "	. . . . .	642
Northern "	. . . . .	648
Eastern "	. . . . .	684
Central "	. . . . .	698

The exemption of the Western districts from the high mortality that prevailed in the rest of London, is very remarkable. Although the autumn of 1858 has been generally so much more unhealthy than that of 1857, yet in the Western division the mortality was the same in each year. The difference between the mortality of the most healthy and that of the least healthy division of London, has amounted this quarter to 158 deaths in a population of 100,000, which is nearly a quarter part of the mortality of the whole.

(B) ACUTE DISEASES.

ART. 8—On the amount of Urea excreted in typhoid fever. By DR. WARNECKE.

(*Bibliothek für Läger; Dublin Med. Press, July 27 and Aug. 3, 1859*)

During an epidemic of typhoid fever, which raged almost incessantly during the latter half of last year, Dr. Warnecke examined the urine of most of the patients treated in the medical section A of the Frederik's Hospital in Stockholm; and in the present paper four illustrative cases are given in detail. Dr. Warnecke's words are put in an English dress by Dr. W. D. Moore.

As a preliminary measure, the author gives the result of some investigations as to the quantity of urea which is normally secreted:—

"The average quantity eliminated during twenty-four hours is—

For an adult man upon mixed diet	. . . . .	33.7 grammes.
" " vegetable diet	. . . . .	25.3 "
For an adult woman upon mixed diet	. . . . .	26.8 "
" " vegetable diet	. . . . .	20.1 "
Between 15 and 18 years, a boy excretes upon mixed diet	. . . . .	19.8 "
" " a girl	" " "	18.0 "

"These are the average results of seven examinations for each individual. There are many causes which, in the normal state, may modify the quantity of urea, but the inaccuracy which might arise from this source is partly removed by employing the average number of a long series of examinations, and disappears when the latter is compared with the average figures of an equal number of examinations of the sick.

"The urine of a patient when laboring under typhoid fever is not distinguishable by external characters from any other. It may be pale, may be excreted in large quantity, may be clear or turbid, opaque, deposit a copious sediment, be deeply colored and secreted in small quantity, which is particularly the case in the commencement of the disease; but what characterizes typhoid urine is, above all, an *absolute and relative increase of urea*. This property, of containing an augmented quantity of urea, is retained by the urine through the stages in which the disease may be said to increase; when, on the contrary, the latter diminishes, the amount of urea is likewise lessened, and the quantity continues smaller after the end of convalescence until the restitution of the body is completely effected.

"The following table exhibits the average numbers of more than fifty investigations (on thirty men and twenty women), which were repeated daily during the stay of the individuals in hospital:

	Male.	Female.
In the first week	43.2	34.
" second "	39.9	30.2
" third "	30.9	24.1
" fourth "	23.2	20.5

"If these numbers be compared with those representing the quantity of urea which is normally excreted, especially under the use of vegetable food, and there are very few patients who use even it, it must be allowed that increase of the quantity of urea is a constant phenomenon in typhoid fever; a phenomenon indicating a highly retrogressive metamorphosis of the nitrogenous tissues, muscles, connective tissue, blood-corpuscles, &c. But this character of the urine is not peculiar to typhoid fever; in many other acute diseases the quantity of urea is increased, as in pneumonia, pleuritis, rheumatic fever, &c.; but in these all the other constituents of the urine of organic origin are simultaneously augmented, while this takes place with the urea in a less degree. In my opinion, we cannot attach too much importance to this circumstance; I believe that in it we shall find a starting point for further investigations as to the nature of the disease. Thus, if we consider the reciprocal relation of uric acid and urea, there is every reason to assume that the latter proceeds partly from the uric acid; not that all the urea which is excreted was formerly uric acid, far from it; there are many other links in the chain, but there are numerous facts to prove that the final destination of uric acid is to be changed into urea. If this be the case, the change must take place in virtue of a process of combustion, similar to that which may be produced without the body by strong excretors of combustion. An increased quantity of organic matters in general, indicates an augmented supply of combustible materials; but an increased quantity of urea, without any simultaneous augmentation of the other organic compounds in the urine, as in the case in typhoid fever, points, on the contrary, to a more energetic combustion. I have said, that in this difference I saw a signpost pointing in the direction our investigations should take; but we still know too little of the combustible agents employed in the living organism.

"If the increase of the quantity of urea is thus a common character of all typhoid fevers, the increase is not equally great in them all; it is certainly directly proportionate to the height of the temperature and the degree of emaciation. I am not indeed able to establish this by definite numbers, as circumstances, of course, do not permit the use of scales, and the gradual loss of flesh is less striking to a daily visitor, while as to temperature, its increase and diminution are connected with particular periods of the day, whereas the evacuation of urine proceeds at very different times, often indeed at very long intervals. Thus much is, in all cases, certain, that the temperature far exceeds the normal, and that in a proportion corresponding to the scale I have above given for the urea. Thus, in the first week of the disease the temperature has, according to the investigations of Traube, Griesinger, and others, ascended to from 104 to 106.7 F., and continues at that height, according to the degree of illness, until the fourteenth or sixteenth day, when it begins to diminish, and sinks by degrees to the normal standard. Both the amount of urea and the temperature are also proportionate to the rapidity of the pulse.

"A diminution of the quantity of urea, though never to a degree below the normal standard, takes place but seldom. I have constantly found this principle diminished shortly after the occurrence of violent hemorrhage at the height of the disease, particularly when the loss of blood is from the intestinal canal; after the hemorrhage has been arrested, the amount of urea again increases in the course of one or two days. It is reasonable to connect this circumstance with the loss of blood, and in my opinion with the diminution of the number of the blood-corpuscles; at least the same does not take place in other evacuations from the intestinal canal, nor in the not unfrequent instances where the constituents of the blood-serum in particular are lost by the excretion of a greater or less quantity of albumen in the urine.

"The amount of urea is, in the next place, diminished, when the enlargement of the spleen is very considerable. It is only lately that my attention has been directed to this point, and I have, therefore, been unable to investigate the subject with the accuracy it deserves. On looking over the numbers for the several days, I found in eight patients a remarkable sinking of the amount of urea excreted, and on reading the histories of their cases, I observed that in five the tumor of the spleen was mentioned as being particularly large exactly

on the same day: in the other three no allusion is made to it; possibly the same condition was present without having been mentioned.

* * * * *

"Complications with other diseases, especially inflammations of the respiratory organs, which occurred very frequently in this epidemic, are wholly without influence on the amount of urea excreted. It would appear as if the great changes, which take place with the metamorphosis of tissue in typhoid fever, absorb all the minor changes, with which the other diseases may be attended.

"Lastly, there is an observation to which I would direct the attention of my readers.

"In many instances the patients have, during the entire course of the disease, expressed a desire for food, and in others they have eaten what has been given them, without having asked for it; in none of these cases has the food consumed been followed by an increase of the quantity of urea. I shall hereafter revert to this remarkable circumstance.

"If the determination of the urea has yielded no great practical advantage, I still believe, as I have already said, that the result obtained may be important in leading to a more correct explanation of some particular phenomena. The greatest advantage we shall derive from it, concerns, in my opinion, the differential diagnosis.

"Thus, when I find the increase of urea after a certain type, without any augmentation of the other organic constituents of the urine, to be peculiar to typhoid fever, I am easily led to seek in this fact a diagnostic sign between this affection and the diseases which, in other symptoms, resemble it. I have, therefore, extended my investigations to gastric fever and meningitis.

"As concerns the first of these two diseases, it is etiologically very nearly allied to typhoid fever. Wherever the latter occurs epidemically, gastric fever almost always prevails at the same time, sometimes preceding the epidemic, at other times not occurring until the latter is at its height, in which case it is often much more extensive. This is greatly in favor of the view that these two diseases depend on similar, if not identical causes. Now, if to this be added that they strongly resemble one another also in their symptoms, that from slight cases of gastric fever we have gradations to the severe, which can scarcely be distinguished from typhoid fever, it is natural that the opinion should be so extensively and almost universally received, that the two diseases are closely allied to one another, and that every gastric fever, which extends over fourteen days, is simply for that reason a typhoid fever.

"In refusing my adhesion to this view, being convinced that there is an essential difference between these two diseases, I rest my opinion principally upon the examination of the urine. For having found in the numerous cases, in which all the signs of typhoid fever were present, and where, moreover, the correctness of the diagnosis was, in many instances, confirmed on dissection, that the above-mentioned condition as to the quantity of urea invariably existed; and having, on the other hand, in the number of patients, in whom such manifest signs did not exist, observed an entirely different state of things to prevail in this product so important to the whole vital process, should I not be justified in presuming, that I had to do with two essentially different diseases?"

ART. 9.—On the Connection between the Heat of the Body and the secreted amounts of Urea, Chloride of Sodium, and Urinary Water, during a fit of Ague.
By Mr. SIDNEY RINGER.

(*Proc. of the R. Med. and Chir. Soc., June 28, 1859.*)

The author commences his paper by a reference to the observations of Von Bärnsprung, Zimmermann, Michael, Wunderlich, and others, on the temperature of the body during ague, and to the observations of Traube and Lechman, Redenbacher, Moos, and Hammond, on the excretion of urea, chloride of sodium, and water, during the fit. He then states that the object of the following paper was to trace out more particularly the connection, if any, between the height of the thermometer and the excreted amount of these substances;

and he then describes his method of investigation, and the precautions taken against sources of error.

His observations were made on two untreated cases of ague (one of quotidian and one of tertian) in University College Hospital, under the care of Dr. Parker; and they are recorded in a series of charts and tables, showing the following particulars:—

1. The temperature of the body (as judged by the thermometer in the axilla, after the manner of Wunderlich) every quarter of an hour, for several hours before, during and after the fit.
2. The hourly excretion of urea before, during, and after the fit, in the first case, and the excretion, according to stages, in the second case—as determined by the method of Liebig.
3. The hourly excretion of chloride of sodium and of urinary water during the same periods in the first case, and the excretion by stages in the second.
4. The quantity of fluid drunk.

The following are the results in the first case (quotidian):—

The temperature of the body commenced to rise from forty-five to ninety minutes before any change was perceived by the patient, and continued to rise during the whole of the cold stage, and during part of the hot. It fell during the latter part of the hot and the whole of the sweating stage. The severity of the fit could be determined by the character of the rise, whether rapid or with oscillations, and by the variations of the temperature during the several stages; but the charts of temperature, and the comments given at length in the paper, must be consulted in order to exhibit this clearly.

The urea was found clearly to increase during the fit, as stated by Traube. The increase commenced before the first feeling of cold, and before, indeed, the rise in the thermometer. The maximum increase of urea was at the end of the cold stage, or just at the commencement of the hot (*i. e.*, before the temperature reached its highest point); and from this point the amount fell during the hot and sweating stages. There were variations in the amount of urea, which closely corresponded to variations in temperature, but often preceded them a little. The amount of increase was considerable (from 200 to 500 per cent.), and was definite; that is, during five successive fits, the amount corresponding to each degree of temperature was the same, so that the temperature might be calculated from the amount of urea, or the reverse. A greater increase corresponded to a single degree at a high than at a low temperature. The excretion of urea was not influenced by the excretion of urinary water.

The chloride of sodium was also increased, and varied with the temperature, but in a much less close degree. The increase was very considerable, and was at its maximum at the same period with the urea. The excretion of chloride of sodium was evidently much more closely connected with the excretion of water than in the case of urea.

The urinary water was also definitely increased (*i. e.*, a certain quantity for each degree); and this was evidently independent of the fluid drunk.

The amount of water drunk in no way influenced the total amount of water excreted. Much more was drunk than was excreted.

The author next relates the observations made on the same patient when quinine was given.

A scruple being given before the fit, and just as the temperature commenced to rise, delayed the rise for an hour, but had no other effect on the temperature on that day, and none on the urea, chloride of sodium, and water. Another scruple being given at night after the fit, completely cured the patient, as far as subjective symptoms were concerned. On the following day, he had no shivering, no warmth, and no sweating, and the temperature remained the whole day quite normal; yet the urea and chloride of sodium increased at the time they would have done had he had a fit. On the next day, the temperature was still normal; but the urea and chloride of sodium still rose during what would have been the fever hours; but the rise on this day was much less than on the day before. The effect of quinine, then was to dissociate those two phenomena, *viz.*, the temperature on the one hand, and the excretion of urea and of chloride of sodium on the other. The same fact has been noted by

Redenbacher. The quinine affected the temperature at once, but the urea and chloride of sodium more slowly.

In the second case (of tertian ague), the temperature followed the same laws. The urea, chloride of sodium, and water were determined only during each stage. There was found to be an increase in all three constituents, the increase being greater during the cold stage. The urea was more than double the amount in the cold stage than in the previous apyretic hours. In this case, charts are also given of the pulse, showing its close correspondence with the temperature.

In addition to these cases of ague, the author subjoins one of hectic fever, occurring in a phthisical patient of Dr. Walshe's. The subjective phenomena were very similar to those of ague, as there was a well-marked cold, hot, and sweating stage. The temperature followed the same rules as in ague, and there was also an increase in the urea and chloride of sodium during the cold and hot stages. There was a difference in this respect, however, that the urea fell before the rise in the temperature commenced, and that its increase afterwards was even less than in ague. It also rose again just at the end of the sweating stage. So that, in spite of the diversity of cause, the phenomena would appear to be very similar in ague and in hectic fever.

The author concludes his paper with a series of conclusions, recapitulating all the results to which his observations have led, and which have been given generally in the above abstract.

ART. 10.—On Typhoid Fever in India. By DR. EDWARD GOODEVE, Physician to the Medical College Hospital, Calcutta.

(*Indian Annals of Med. Science*, Jan., 1859.)

The substance of this communication may be gathered from the following quotation. Dr. Goodeve is speaking to students in a clinical lecture:—

"I think that these cases illustrate the disease very well, and agree closely with the descriptions which I have given you of the typhoid fever of Europe; and I also think that you will admit that they differ in many respects from our ordinary remittent and intermittent fevers. They agree with the typhoid fevers in their long duration, in beginning in a mild manner, and in the slowly progressive and ingravescent character of the symptoms. Most of the other cases that I have seen began also in a slow and imperceptible manner. Indeed, I think that it is the mildness of the accession of the symptoms, the indefinite nature of the febrile paroxysms, and the persistence of the pyrexia, day after day, with increasing nervous depression, or with an amount of nervous or muscular depression not to be accounted for by the degree of the fever which first gives the suspicion of the real nature of the disease; and I have often told you that these fevers which begin as it were imperceptibly are often more serious than those in which the pyrexia is developed more quickly, and that you should be very cautious in your prognosis in such cases.

"All the cases cited ran a long course, thus, No. 1 was not convalescent till between the 35th or 40th day; No. 2, till between the 25th or 30th; No. 3 till the 29th, and the disease was prolonged afterwards by tedious sequelæ; No. 4 till the 15th or 16th day, but it may have been longer; No. 5, about the 22d day; No. 6, till the 25th day, but the swelling of the parotid gland and diarrhæa protracted recovery for much longer; No. 7 has been two months in hospital and was eight days ill before admission.

"In all the above cases, the diarrhæa was marked and began early. In one or two of them it ceased with the fever, but in the others it lasted beyond it. You will note that in all the stools were more or less fluid, not always abundant, sometimes, but not always offensive; they were generally of a yellowish color with a yellowish or drab colored sediment. Hemorrhage from the bowels appeared with the diarrhæa in cases 1, 3 and 6. In none of the cases, which I have met with, has the hemorrhage been difficult to control. A symptom of this complaint is the readiness with which the bowels are acted on with slight doses of medicine, thus, I have seen a teaspoonful of castor oil produce several evacuations in a young man of twenty. This proneness to be purged by slight *laxatives* should always excite suspicion as to the disease. But you must not

suppose that diarrhoea is an invariable symptom of typhoid fever, in some cases it does not occur in the beginning of the complaint. Sometimes, indeed, constipation attends the commencement, but sooner or later relaxation of the bowels sets in. Time does not allow me to comment fully on all the other symptoms which those cases have shown, but you will have seen that they all showed signs of alteration of the function of the nervous system in some way, as in loss of nervous energy, muscular tremors, deafness, drowsiness, or delirium. In most of them there were catarrhal symptoms and the physical signs of congestion of the mucous membrane of the bronchi. They were all attended with adynamic signs as manifested in the dry tongue, teeth covered with sordes, rapid and feeble pulse, and more or less muscular debility. In all there was great emaciation, and when the disease had been fairly established, the dusky or leaden hue of countenance. This last is always a well marked feature, and I frequently drew your attention to it in the cases while under treatment. Among the rare phenomena met with were the great aphthous exudation in No. 3, and the swelling of the parotid gland in No. 6.

"I confess that I have not met with rose-colored eruption so frequently as I should have expected, but this eruption is by no means always a necessary occurrence. Dr. Jenner mentions that it is oftener absent than present in patients above thirty, and Dr. West tells us that it is frequently absent in young children. Dr. Bartlett in his work on the fever of the United States shows that the spots are often absent in North America. The patient requires to be seen in particular stages of the disease for them to be found.

"In cases No. 4 and 5 they were very distinct, and also in case No. 5 of Dr. Scriven's paper in 8th No. of the *Indian Annals*. The amount of the eruption varies very much even in Europe, the number of spots varying from 2 or 3 to 50 or more. When there is such recognized latitude as this, one can really limit the possibility of going a little further, so that there shall be no eruption at all, without altering our opinion of the nature of the disease. In case 3, the eruption was similar in many respects to that of the red fever, of which I have shown you so many examples, but the attendant symptoms and the course of the diseases were unlike those of that complaint. Dr. Jenner tells us that a red rash such as is described in this case sometimes occurs, and mentions an instance in which a patient so affected was supposed to be laboring under scarlet fever.

"I think that you will recognize the similarity between the cases of fever which I have related and typhoid fever, and I think that you will as readily perceive differences between them and our ordinary ephemeral, continued, intermittent and remittent fevers; differences quite enough to stamp them as belonging to a distinct disease, and to one, probably due to a different cause. From the very commencement, there is often sufficient to distinguish them from the ephemeral fevers. In these last, there is less depression for the amount of fever than there is in the typhoid species and the quick termination of the complaint soon decides the nature of the case. In the ardent continued fever, the pyrexial symptoms are even in the beginning more severe and they run a quicker course. In our intermittent fevers, the paroxysms are more regular, the stages more marked. If severe, the progress of the disease is much more rapid; if not severe, though the paroxysms may in some cases recur daily, there is much less nervous depression. Thus, it is not unusual for a fever of intermittent character to recur daily for a fortnight or more, and yet in the interval of the paroxysms, the patient continues free from depression or debility. There is seldom also in any of the above, the same amount of derangement of the bowels, and often none at all. The disease which we call red fever, or the scarlatina rheumatica of Dr. Copland, often begins with but slight fever, and often with great relaxation of the bowels, but the eruption comes out much earlier and there is almost always implication of the mucous membrane of the mouth; the eruption is seldom succeeded by prolonged adynamic symptoms, and in many instances there succeeds a remarkably slow state of the pulse, the beats often descending for a day or two to 48 and 50 per minute. From the remittent, the typhoid fevers are distinguished by the more quick progress of the former, the rapid supervention of grave symptoms, the greater amount of

pyrexia even in the first days, the frequent early coming on of hepatic and gastric derangement, and the rapid occurrence of death in the severe cases. In the United States of America where the typhoid and remittent fevers prevail, there appears to be no hesitation in separating them. There may, I think, however, occasionally be considerable difficulty in distinguishing clinically between some remittants and typhoid fevers when the former is of a mild character. But though I believe that the disease I speak of to-day does not belong to our malarious fevers, I believe that there is a fever described in Indian works on medicine which it does resemble. I allude to Mr. Twining's and Mr. Martin's 'Insidious Congestive Fever of the cold season.' If you compare the descriptions of this disease as given by these authors with the symptoms of typhoid fever, I think that you will find that there is great similarity. Mr. Twining tells us that the pyrexia is so trivial that a practitioner not acquainted with the disease hardly sees an excuse for adopting active treatment, and the patient attends to his business for some days after the disease has begun. He notices the duration of the complaint and the comparatively hopeless state from which patients recover. He does not speak of diarrhoea as a constant symptom, he says 'at an early stage of the disease, the bowels are usually costive, and when the calls to stool are frequent, the evacuations are exceedingly scanty. If the abdomen be examined, there is some fulness at the epigastrium and across the hypochondrium, and this tension is not least in those rare cases where slight tendency to diarrhoea has been manifested.' But though Twining does not lay so much stress upon the looseness of the bowels, this quotation proves that there was a great deal of abdominal irritation in his cases, and possibly the scanty stools alluded to were really the usual fluid evacuations of the typhoid fever. These are not necessarily free and copious, even constipation has been at times met with in Europe, as you will perceive in Dr. Jenner's papers. In further proof of the similarity of the diseases, Twining himself says that 'in a few rare instances when patients have died after a protracted fever of this kind, superficial ulcerations of the mucous membrane of the small intestines are found.' In the second edition of his work on the diseases of India, he himself seems to think that further observation might establish a resemblance between his congestive fever and 'some modifications of European typhus.' I myself think that a dispassionate consideration of all the circumstances will make it pretty certain that it really is typhoid fever. In Twining's day, the typhus and typhoid fevers were not considered distinct, as they now are. It is evident, however, that he had felt the necessity of separating this fever from the ordinary malarious fevers of the country, and had he possessed the same amount of discriminating knowledge of the continued fevers of Europe that we now have, I think that he would have classed the congestive fever with the typhoid species.

"I have already told you that the special anatomical lesions of typhoid fever are ulcerations of Peyer's patches and the glands of the mucous membrane of the small intestines and fulness and congestion of the mucous membrane, but I do not mean to assert that all the fevers in which, after death, ulcerations of these patches are found are necessarily examples of this disease alone; because I have seen cases of *post-mortem* examinations in which these lesions were observed after death from simple remittent fever.

"I beg of you not to suppose that every case in which you find typhoid symptoms is one of typhoid fever; there are many diseases which may resemble it in some manner, such, for instance, as obscure suppurative diseases, some asthenic pneumonias, some forms of phthisis, &c. You must in every case therefore investigate whether you have to deal with the simple general typhoid fever or some low form of inflammation with feeble or imperfect febrile reaction.

ART. 11. - *On the relation of Diphtheria to Scarlatina.*
By Dr. BALLARD, Medical Officer of Health for Islington.

(*Medical Times and Gazette*, July 16 and 23, 1859.)

During the first three months of the present year, Dr. Ballard took great pains in investigating the history of every case of death from diphtheria or

any other analogous disease, in the district of Islington. These cases, which are 80 in number, are arranged in three classes:—

Class 1.—Cases in which there was satisfactory evidence of the presence of the true diphtheritic exudation upon the throat—in all 55.

Class 2.—Cases which were certified as deaths from "diphtheria" by the medical attendant, but in which no particulars of the appearance in the throat are to be obtained—in all 13.

Class 3.—Cases in which Dr. Ballard was assured by the medical attendant that the exudation was absent—in all 11.

These are the data upon which Dr. Ballard bases his conclusions.

"The following facts," says Dr. Ballard, "may contribute towards solving the problem of the mutual relation of these diseases. In themselves they appear opposed to the hypothesis that they are merely phases of the same malady:—

"1st. In 7 cases of Class 1 the diphtheritic sore throat was stated to have been associated with recent scarlatina. In only 2 of these did the rash appear in the course of the throat affection. Out of the remaining 5 cases in which the rash appeared first and the diphtheritic sore throat secondarily to it, the rash had in 4 cases left the skin before the exudation upon the mucous membrane made its appearance. I may add that in other instances that have come under my notice both the rash and sore throat of the scarlatina have quite disappeared before the symptoms of diphtheria set in.

"2d. In 47 instances, 38 of them being of Class 1, I was able to obtain satisfactory information as to the patient having suffered from scarlet fever at more distant periods. The following represents the proportion of those who had and had not thus suffered:—

	Had scarlatina previously.	Not had scarlatina previously.	Total.
Class 1	9	29	38
Class 2	1	2	3
Class 3	2	4	6
Total	12	35	47

"This proportion of 1 to 3 does not, I imagine, differ greatly from that which would be found to exist among persons selected in any other manner from the same ages and the same stations of life. In the twelve patients who had had scarlatina, the occurrence of the disease was dated back to periods varying from six months to five or six years. Now, few occurrences in medical experience are more rare than a second attack of scarlet fever: all writers seem to agree in this. Dr. Willan only met with a single instance in 2000 cases, and Bouchut says that he has never met with a well-authenticated case at all. Still, as I desire to state this question fairly, I may say that, although I have never myself seen a second attack of scarlatina with rash, I have on more than one occasion seen persons who have had scarlatina attacked with sore throat when attending upon persons suffering from true scarlatina, and this at a period as short as a year from their own attack. This appears to me a new mode of viewing the matter; it is one on which the experience of the profession should be expressed.

"There is a polymorphism in disease, as in crystallography. Witness the varieties of true and masked agues, the almost identity of smallpox and vaccination, the undoubted relation of erysipelas and puerperal fever, of regular and irregular gout, of the several forms of cancer, &c. And with respect to scarlet fever, practical accoucheurs know very well the danger to which a puerperal woman is exposed when subjected to the influence of scarlatina poison. An impression has long been growing up in my own mind that there is a form of fever to which they are liable that bears to scarlet fever the same relation that another form does to erysipelas, and that this fever is of a very fatal type. I have seen several such cases in consultation where no rash or even sore throat have been developed, but where the woman has sunk as under the influence of a powerful depressing poison. I know that true scarlatina with rash may be

as in certain external inflammations, conjunctivitis, or hæmorrhoids; but in deep-seated internal inflammations it can be of little benefit. This is a widely different method of employing the remedy from what was formerly practised; viz. by repeated large bleedings, which lowered the pulse and exhausted the patient, at a time when he required all his strength and vigor to support the new changes in growth required by the economy. I believe that an equally good effect would have resulted in some of Dr. Markham's cases, from the extraction of one-half or even one-fourth of the amount of blood he took away. So far, however, is the proper use of bloodletting as a palliative in inflammation, and as a curative measure in congestion of the heart, asphyxia, and so on, opposed to pathology, that it is quite in harmony with it; and, in all these cases, its good effects fully explain the benefits, temporary and permanent, which have been recorded in its favor by practitioners both ancient and modern."

ART. 13.—*On the Indications for Bloodletting.* By Dr. SKODA.

(*Prager Vierteljahrsschr.*, Bd. I, 1859, and *Edinburgh Medical Journal*, May, 1859.)

Professor Skoda, in the course of his clinical lectures, had occasion to make some remarks on the indications for bloodletting, of which the following is the substance: Venesection is only justifiable when, by a reduction of the quantity of the blood, dangerous contingencies, which have a distinct relation to the general mass of the blood, can be thereby removed. Inflammatory disease is of itself no indication, and equally valueless is the so-called nature of the fever—inflammatory, adynamic, &c. The condition of the pulse, as to strength and feebleness, is more the subjective idea of each individual physician, and cannot, therefore, be adopted as a directing indication for venesection. Real or apparent debility is a term conveying no more certain meaning, for the debility may be either muscular, mental, or merely relating to the senses; while others include in the term, diminution of the pulse or of the temperature. The remarkable observation, that the great muscular debility of many febrile diseases is often much lessened by bleeding, and which led to the supposition of a false debility, produced by oppression of the nerves, removable by bloodletting. But this fact is equally explicable by the consideration that muscular debility diminishes with the diminution of the fever, and this is equally striking whether venesection have been used or no. Only, bloodletting is a new loss, which must be added to that already caused by the febrile movement. Many people can withstand the loss of blood better than others; and there can be no doubt that a certain amount of blood may in some produce derangements only to be speedily removed by bloodletting. That, however, is but an individual case, and can no more be elevated to a general rule, than the similar fact that some individuals cannot bear the smallest doses medicines which in others produce their beneficial effects only in very large ones. Accordingly, we may, in robust individuals, employ bloodletting even to allay certain symptoms not having a distinct connection with the amount of blood; but a favorable result in their case must never induce us to extend the practice to patients already anemic, and such practice must be carefully avoided in diseases which tend to terminate in anemia. Loss of blood will be borne as long as sufficient remains for the nourishment of the organs. The inevitable alteration in the composition of the blood, consisting, as it does, chiefly in an increase of water, is speedily corrected by the secreting organs. Serious disturbances only present themselves in such as are incapable of replacing the blood lost, or in whom the loss goes on faster than is compatible with due nourishment. Venesections, performed from time to time, are often borne without detriment; how long this may have continued we cannot distinctly say. Bloodletting in acute inflammatory diseases, when not too frequently or too largely practised, have no influence in hastening or retarding the convalescence; this depending solely on the slower or more speedy return of the diseased organ to its normal state. The sole indication for bloodletting is, therefore, the necessity of subduing dangerous symptoms, whose occurrence has a determinate relation to the amount of blood, and, exceptionally, in cases where experience has shown that

troublesome symptoms may be thereby relieved; but in such cases the individuality of the patient must be carefully kept in mind. Venesection is always to be avoided in feeble persons, and in attacks which are apt to recur (as hysteria and hypochondria).

(C) CHRONIC DISEASES.

ART. 14.—*On General Enlargement of the Lymphatic Glands.*—By (1) Dr. WILKS, (2) Mr. WITTEN, and (3) Dr. WUNDERLICH.

(*Medical Times and Gazette*, March 19, May 14, and July 9, 1859.)

1. Dr. Wilks's communication was made to the Pathological Society, and the account of it is very brief. The first notice of this affection, we are informed, is to be met with in the seventeenth volume of the 'Transactions of the Medical and Chirurgical Society,' where numerous cases of it are related by Dr. Hodgkin, and in a paper by himself in the Guy's Hospital Reports, where some other instances are recorded. The disease is manifested by an immenso enlargement of the lymphatic glands, especially those in the mediastina and lumbar region, but very often including those in groin and neck, and at the same time the spleen is much enlarged, and contains some white deposit. These glands, when cut, are uniform in structure, translucent, and tough, and consist of a combination of an albuminous or lardaceous matter, with a fibroid tissue; and the same in the spleen; the other organs may sometimes contain a small amount of the same deposit. The symptoms attending the disease are extreme anemia and dropsy, death occurring from exhaustion. In some cases tubercle has been present, and in others the organs have been lardaceous or waxy, showing its close affinity to these two other morbid conditions. Dr. Wilks exhibited, at the Pathological Society, some specimens which came from a lad, æt. 18, who died in Guy's Hospital, under Dr. Pavy's care, with the above named symptoms, dropsy, extreme anemia, and great enlargement of the glands in the neck. In this case, after death, the glands in mediastinum and abdomen were found similarly affected; the spleen was of great size, and had, scattered through it, a number of white deposits. The structure of the gland was almost entirely nucleated fibre, and the same was the composition of the material in the spleen. The liver and kidneys, on microscopic examination, also showed a small quantity of the same nucleated fibre in various parts of the tissue.

2. Dr. Witten's case.

Valentino Pedrotti, an Italian, aged 16 years, was the subject of enlargement of the submaxillary, the parotidean, and mastoidean glands, on the right side, one year ago: two weeks afterwards the corresponding glands on the opposite side became similarly affected; about a fortnight afterwards those in both axillæ became spontaneously enlarged, extending from thence within ten days to those below the clavicles; and lastly, affecting the inguinal and femoral, on both sides, about the same time—the whole affection taking about three months for its full development. My patient sought advice in the city at about the fourth month from the first appearance of those glands situated near the mastoid region. He was ordered iodide of potassium internally, and the iodide of potassium ointment externally, and also the application of the tincture of iodine. This treatment was continued for the space of seven months, with but little alteration in the size of the glands.

It was noticed by the friends of the boy that swellings about the face and axillæ were decidedly smaller monthly, when the moon was at its full, and rapidly became larger as soon as the moon had arrived at its last quarter. One month ago I was sent for to see him, as he was unable to go so far as from Clerkenwell to the city, and I found him suffering from general hypertrophy of all the superficial glands; and, moreover, from his difficulty in breathing, and the suffused eyeballs and congested look of his countenance from impeded circulation, it was evident that the diseased action had extended to the deeper-

seated glands, implicating those in proximity with the larynx and bronchi. He had recurrent bleeding from the nose; his tongue was clean; pulse accelerated between 80 and 96—during the last month of his existence, small and weak. The secretions were normal, although diminished in quantity, with the exception of the saliva, which was greatly increased. Appetite good. Sleeps well.

Mr. Bateman saw him with me in consultation, and confirmed my observations as to the nature of the affection; he advised a continuation of the iodide of potassium internally, and friction with the iodide of cadmium ointment externally, over the enlarged glands, there was marked decrease of the size of glands, but the breathing was not much benefited. Three days before death, he vomited at least a pint of arterial blood, and gradually sank from dyspnoea and exhaustion. I regret to say that an autopsy was not permitted me, as his parents were then residing in Italy, and the friends resisted every effort I made to procure an examination. The most interesting features about this case are—the extension of the disease from the upper to the lower extremities in so short a time, the monthly alteration in the size of the external glands, the bleeding from the nose recurring principally when the glands were apparently at their largest size. I have noticed more than once with females suffering from bronchocèle, that the tumor becomes larger as the period for menstruation arrives, and decreases after that state has passed by; a similar analogy stamps the interest of this case, for the boy was in appearance effeminate.

3. *Dr. Wunderlich's cases.*

I. C. L., æt. 22, a publican, was admitted into the hospital on August 28. Until February he had always enjoyed good health; but then, apparently as a consequence of cold, the glands of the axillæ swelled to a large size; and a month or two afterwards the cervical and inguinal glands enlarged, and a tumor projected from the upper part of the sternum. He was considerably emaciated; the skin was dry, and partly occupied with prurigo, and there were physical signs of the existence of phthisis. An immense number of enlarged glands, varying in size from a pea to a walnut, were observed in both the cervical regions, the supra-clavicular hollows, and at the nape. Under the right clavicle and at the right nipple, they varied from the size of a bean to a hazelnut; while in the left axillary region a conglomeration as large as a foetal head existed, soft in some parts, and hard in others, and having portions of the skin adherent. Under the pectoralis and along the arm were several swellings as large as nuts. In the left axilla a lump as large as an apple existed, having several smaller swellings near it. In the inguinal region there were small, hard enlargements. Under the use of iodine, cod-liver oil, and good diet, his chest symptoms improved for a while, and his weight increased; but the improvement was only temporary, and he died on November 10—new swellings of glands having of late appeared close to the old ones, while the latter underwent an increase of size, especially such of them as had been touched with iodine. At the autopsy there was found to be enlargement of almost all the lymphatic glands of the surface of the body, varying usually from a nut to an egg in size, and exhibiting in section a bacony (*speckartige*) consistency, a yellowish-red color, and but little juice. On the sternum there was so hard a mass that during life it was believed to be a displacement of one of the bones. The xiphoid process and attachments of the ribs were surrounded by similar swellings. The whole mediastinum was filled by a similar mass, and the lungs and heart were thrust backwards. The latter organ was normal, and the capacity of the great vessels was not intrenched upon. The lungs exhibited tubercles in various stages. Professor Wunderlich describes the microscopical character of the glands at great length.

2. A. H., æt. 32, maid-servant, had enjoyed good health until August, 1853, when, without obvious cause, the menstruation ceased, and soon after swelling of the cervical glands commenced, which was somewhat reduced by penicilling with iodine. She soon afterwards became pallid and emaciated, and suffered from night sweats. In May, 1854, pain in the region of the spleen set in, and

continued at intervals. In June the glands in both axillæ, the bend of the elbow, and the popliteal space, became enlarged. On her admission, July 27, the emaciation was considerable; enlarged glands of various sizes were observed in the most different parts of the body; there was some pain in the region of the spleen, but no fever until some time after her admission. This again diminished in September, but the enlarged glands increased in number, and the spleen became much larger. On October 2d she died, worn out. At the autopsy the enlarged glands at the surface were found to be very numerous. Large packets occupied the mediastinum, the exterior of the bronchi, and various situations within the cavity of the abdomen. No tubercles were found in the almost bloodless lungs. The spleen was more than doubled in size, arising from the deposit of a yellowish-red mass, which, both to the eye and to the microscope, presented an exact resemblance to the substance of the swollen glands.

The most remarkable circumstance in both of these cases was the enormous enlargement of such great numbers of lymphatic glands. To such an extent had they increased, that they not only disfigured the form of the body, but from want of space to develop in, became themselves squeezed and flattened into various shapes. The change which the glands had undergone was in no-wise of a carcinomatous or of a tuberculous nature; but consisted in an enormous hypertrophy produced with great rapidity, a portion of the nutritive material being deposited in an amorphous condition in the hypertrophied gland. The increase of the peculiar glandular parenchyma was less in the second than in the first case, there being in the former a good deal of coagulated fibrin, and infiltration of incompletely organized matter. The change observed in the spleen is, as far as the author is aware, peculiar and hitherto undescribed. To the unaided eye it most resembled innumerable points of suppuration, save that it was nowhere soft and fluidiform, but, on the contrary, very firm, and almost of cartilaginous hardness. Exactly the same change, but in far less numerous spots, was observed in the liver. The resemblance of this infiltration with the condition of the swollen lymphatic glands, leads to the inference of both being due to a common constitutional affection; and it might be indicated as spleen or liver scrofula. The causes of the affection were discoverable in neither case. The glandular swellings were not secondary to a peripheric affection. They must be regarded as an idiopathic affection; as the expression, in fact, of a constitutional disease. Both patients were excessively pale, which, together with the enlargement of the glands, and in one case the enlarged spleen, gave rise to the suspicion of leucæmia. Repeated microscopic examination of the blood did not confirm this. Little or no pain accompanied the affection. The glands caused inconvenience chiefly from their size; but their pressure being on all sides, they encroached but little on the capacity of the vessels. The heart and lungs were interfered with by the mediastinal glands. There was a slight peripheric œdema. The general condition exhibited extreme anæmia. Fever was only temporarily present, and never assumed the character of hectic. The patients sank under the increasing loss of power.

ART. 15.—Coincidence of cancer and tubercle.

By Dr. Coetz, Assistant-Physician to the Middlesex Hospital.

(*Medical Times and Gazette*, Oct. 15, 1859.)

Although it is now well known that cancer and tubercle may coexist in the same individual, yet the coincidence is of sufficient rarity to render it desirable to accumulate instances.

F. G., æt. 60, a "painter's jobber," was admitted into the Middlesex Hospital on the 10th of August, 1858, under the care of Dr. Goodfellow, to whose kindness I am indebted for the notes taken during life, and which add so greatly to the interest of the post-mortem examination.

When admitted, the man was emaciated, pallid, with dropsical legs, and complaining of a "troublesome cough, worse at night." His then illness was of eight or nine weeks' standing; but he had been ailing long before.

There was "dulness on percussion over the apex of each lung, limited in extent, but greater on the left than on the right side; slight bronchial respiration and increased vocal resonance."

On the next day, attention was drawn to the abdomen, where was detected "an irregularly circumscribed, indurated tumor; slightly movable by change of posture; extending from the umbilicus to about three inches upwards and to the left." He complained of some pain in this spot, which, however, was relieved by a dose of castor oil, and which never returned. This tumor was supposed to be malignant; and from its situation and from the absence of any symptom referable to the stomach or the liver, Dr. Goodfellow came to the conclusion that it was situated in the omentum, and probably involved a portion of the transverse colon.

From this time until the man's death (which took place on the 20th October from exhaustion and general dropsy), no change of any moment occurred. He retained throughout an excellent appetite, and was placed successively on broth diet, fish diet, and ordinary diet; he then had milk diet with a chop; and was particularly fond of gruel, of which he ate largely on the day of his death. During all this time he never once vomited, nor complained (after the castor oil) of pain in the abdomen.

I extract from my own notes such portion of the autopsy as bear upon the chief points of the case.

Right lung: pleura adherent at posterior part of the upper lobe. The adhesions, easily broken down, consisted of recent lymph, and of a number of minute whitish granulations, about as large as pins' heads. Both the upper lobes were highly congested, but floated in water. The lower lobe was of a deep violet color, very friable, and sinking in water.

The left lung was small, pale, collapsed, free from pleural adhesions. On section, the upper lobe was found to be profusely studded with gray military tubercles interspersed with a large amount of pigment. Among these was a much smaller proportion of yellow tubercles; and of these some had undergone softening, leaving small cavities, none larger than a pea. The lower lobe was emphysematous.

Under the microscope these tubercles presented the usual elements; small, shrivelled, angular nuclei, microscopic granules, and (in the yellow tubercles) fat.

The abdomen being opened, on the anterior surface of the right lobe of the liver, just beneath the ensiform cartilage, appeared a solid mass of a yellow color, as large as a walnut, and with an ulcerating surface. In other parts of the liver were numerous similar masses, varying in size from that of a pea to that of a pigeon's egg.

The stomach (which was firmly adherent to the liver, to the spleen, and to the transverse colon) was of normal size. Its walls, with the exception of the extreme fundus, and the pylorus itself, consisted of a hard unyielding substance, about three-quarters of an inch in thickness, the internal surface of which was in a state of uniform ulceration. On section, this structure was found to occupy all the coats of the stomach, except the peritoneal, which was unaffected. The extreme portion of the fundus appeared quite healthy. The œsophagus was healthy.

These structures were examined microscopically.

The yellow masses in the liver consisted essentially of large nuclei containing one or two very large, and very distinct, nucleoli. With these were many polygonal cells in various stages of degeneration.

The structure occupying the walls of the stomach presented to the naked eye a grayish translucent substance, interspersed with small opaque masses of a yellow color. The former consisted of a loosely reticulated fibrous stroma containing nuclei exactly resembling those described above, microscopic granules, and a few rather small cells containing large nuclei. The opaque yellow substance consisted of microscopic granules (very numerous), of fat, and of structureless corpuscles not distinguishable from colloid.

The intestines were quite normal, except where the transverse colon was adherent to the anterior wall of the stomach; at which spot it was contracted to the extent of half its diameter.

SECT. II.—SPECIAL QUESTIONS IN MEDICINE.

(A) CONCERNING THE NERVOUS SYSTEM.

ART. 16.—*On Coup-de-soleil in India.* By Dr. W. SIMPSON, Surgeon to Her Majesty's 71st Regiment.

(*Trans. of Medical and Physical Society of Bombay, No. 4, New Series, 1859.*)

The chances, the symptoms, the post-mortem appearances, and the proper treatment of sun-stroke, are all ably illustrated in this paper.

"The average strength of the 71st Regiment during the months of May, June, and July, 1858, was 417 non-commissioned officers, rank and file; 89 cases of sun-stroke occurred between the 5th of May and the 15th of August, of which number 26 died; 13 suddenly, either on the line of march, in the field, while engaged with the enemy, or in camp; and the remaining 13 died in hospital. The men composing the regiment arrived in Bombay from the Mediterranean on the 6th of February, 1858, and in the latter part of the same month proceeded by bullock train to Mhow. On the 29th March they left Mhow, en route to Jhansi, and joined the C. I. F. Force at Goomah on the 5th May, having marched the whole way from Mhow. The regiment arrived at Jhansi on the morning of the 2d of May, and there was little or no sickness till this date; the men, however, were becoming exhausted from long marches, that were made during the previous four nights, and they obtained no rest at Jhansi, but proceeded to Chirgong the same night (2d May) at 10 o'clock, a distance of 18 miles; from Chirgong to Mote, a distance of 16 miles, they also proceeded on the following night. These long marches produced much exhaustion, and, in a great measure, accounted for the numerous cases of sun-stroke that occurred at Koonch on the 7th May, and on various future occasions.

"*Symptoms.*—The following symptoms were invariably present: an intensely hot, dry skin, which lasted till even after death in those that died within 12 or 16 hours; a sense of constriction of the chest and labored breathing, with a feeling of a heavy weight just below the ensiform cartilage. Great prostration of strength, accompanied very frequently with inability to answer questions without weeping (the strongest and most robust were not exempt from these symptoms); a tumultuous action of the heart, with strong pulsation of the carotids; pulse varied much, but was never full and hard; headache referred more particularly to the summit of the head, conjunctivæ injected, pupils acted to the stimulus of light, unless during convulsions, or during the stage of coma, when they were fixed and contracted. In several instances, however, they became suddenly dilated for a few minutes, after being fixed and contracted to a point. Countenance generally pale at the commencement, but in those cases of a severe character, or that had a fatal termination, it assumed a leaden hue; the urine was never entirely suppressed, but it passed off involuntarily drop by drop; bowels were generally costive, though several cases occurred the bowels being quite natural in every respect. There was also a great desire to sleep, so much so that if not checked at first, it passed into coma, which almost invariably terminated in death. Loud moaning during the stage of coma was also invariably present. Death either occurred from convulsions, most frequently of an epileptic character, or from coma. The symptoms, however, varied according to the severity of the attack, and the constitution or temperament of the patient. Death sometimes occurred almost instantaneously. One man just before arriving in camp at Banda (the regiment did not arrive on the encamping ground till day, 12th May, till after noon, and the thermometer was 120° Fah. in the tents), after a march of over 20 miles, fell down in the ranks, uttered a shriek, and expired in a few minutes. A man at Koonch, before the engagement with the rebels took place, fell asleep for a short time during a halt that occurred (the sun being fully two hours above the horizon), and on being roused up answered questions with difficulty, and he had lost the use of his limbs. Others again were seized with maniacal symptoms: a man at Calpee made a rush at the Hospital Bheestie and tore the muscuck from him,

and on remonstrating with him I remarked he was quite deranged in his mind. After getting some water to drink (which he swallowed in a painfully ravenous manner), and having a quantity poured over his head and body from a height, he became quiet, and shed tears abundantly. Others again smiled and laughed (unnaturally) at one time, and at another became excited and alarmed if spoken to, and any attempt at deglutition brought on convulsions. In short, some of the cases presented symptoms of apoplexy, some of epilepsy, mania, and hysteria. The disease under consideration, when of a severe character, more closely resembles apoplexy or epilepsy (which often merges into apoplexy) than any other disease I am acquainted with. In many of the cases that came under my care, genuine epileptic convulsions ensued, lasting from five to ten minutes, with intervals of variable duration of perfect consciousness and rest. During the stage of coma the pupils were fixed and contracted, and the conjunctivæ injected, and there was loud moaning till a few minutes previous to dissolution taking place, which last symptom, however, I have never heard in pure cases of apoplexy that have come under my observation.

Post-mortem appearances.—Time and opportunity did not allow of post-mortem examinations being made to any extent on the line of march, during the late campaign, when fatal cases of sun-stroke were of common occurrence, and those that were performed elucidated little or nothing regarding the nature of the disease; the only abnormal appearances were an excess of venous blood to a greater or less extent in the brain, and congestion of the lungs and liver. This want of balance of the circulation, taken in conjunction with the symptoms during life, induces me to believe that sun-stroke is attributable to the functions of all the organs that free the blood from those matters that are injurious to the system being either entirely or partially suspended, such as the lungs, liver, kidneys, and skin. The blood is not perfectly oxygenized in the lungs, the bowels as a rule are confined, and the healthy action of the liver is interrupted (this last statement is, I think, proved by the fact that those men who had severe attacks of sun-stroke have since suffered from derangement of the liver). The kidneys evidently do not perform properly their functions: the urine is not suppressed, but it is passed involuntarily drop by drop, and in diminished quantity. The skin is pungently hot, dry, and harsh (every man seized with sun-stroke, and who could answer questions, informed me that he had not perspired for a greater or less extent of time, sometimes not for days, previous to being attacked, and that he had enjoyed good health as long as he perspired, but that on the perspiration being checked he felt dull and listless, and unable to take much exertion without making a great effort). No doubt this state of the body is attributable to the nervous system being over-stimulated by exposure to the sun, more particularly when the thermometer ranges from 110° to 120° Fah. (which was too often the case in the tents occupied by the men during the day in May, June, and July), together with extreme exhaustion from long-continued exertion and want of rest.

Treatment.—The chief point in the treatment, in my opinion, is to rouse the nervous energy, which is most effectually accomplished by pouring cold water from a height over the head and nape of neck, and dashing the same in the face and over the chest, and this should be persevered in as long as there is any tendency to sleep or to coma; at the same time the patient should be roused up by speaking to him, and, if necessary, by shaking him. As soon as he can swallow, brandy or wine and ammonia should be given in liberal quantities, and frequently repeated; and calomel and croton oil administered, to act on the liver, and move the bowels. The most distressing symptoms a man laboring under this disease complains of are—a sense of suffocation—and a dead weight at the *acrobiculus cordis*. I have found that rubbing for some time turpentine over the chest and stomach affords the most effectual relief. These remedies, together with stimulant enemata and mustard cataplasms to the legs, are more likely to prove successful than any I am aware of. The after-treatment consists of nourishment and stimulants, such as arrowroot, beef-tea, wine or brandy and ammonia, together with cold applications to the head, blisters to nape of neck, and acting on the liver and bowels. Bleeding, either locally

or generally, is inadmissible, more particularly if there is exhaustion from previous exertion. No patient can be considered out of danger till the skin becomes cool and moist."

ART. 17.—*On the Efficacy of Cold Affusion to the Head in Narcotism.*

By Dr. A. REEVES JACKSON.

(*Amer. Journ. Med. Sciences*, July, 1859.)

In the first two cases the narcotism was from opium; in the third from belladonna.

CASE I.—On the 6th of March I was called in haste, by an Irish laborer, who lived about one mile from this place, to see his son, a child eight months old. The father told me that the child was "clean dead," and "kilt entirely," when he left home; but was unable to give me any further information. On arriving at the place, I found the little patient in such a condition as almost to justify the father's expression.

Lying on the lap of its mother, its face was of a deathly pallid hue; the breathing slow, interrupted, gasping; the extremities were cold, and the skin covered with a clammy perspiration. The pulse at the wrist was barely perceptible in its feeble, thread-like beat.

I learned from the mother that she had been in the habit of administering to the child the preparation of opium known as *Godfrey's Cordial* to make it sleep; and that having occasion to go to the village, where she expected to be absent some length of time, she gave it, before starting, a little more than usual, in order that it might sleep until she returned. The quantity given on this occasion, she said, was about two teaspoonfuls, but as she made this admission with great reluctance, it was probably much greater. She was absent three hours, and when she returned the child was sleeping soundly, and she made no effort to arouse it until nearly an hour afterwards, when observing that it was unusually pale, she made an attempt to awaken it, but found it impossible to do so.

Five hours had now elapsed since the dose was administered. It was evident that the child was rapidly sinking, and that unless relief was quickly had, it would soon die. The stupor was so great that emetics could not be given—nothing could be swallowed. I had no stomach-pump at hand, and there was no time to send for one; beside which, these means could not rouse the patient, which was to my mind the prime indication. I remembered that cold affusion to the head had been used successfully in some published instances, and I determined to give it a trial, although without the slightest expectation that it could be of any avail in this case.

Accordingly I ordered the father to procure a bucketful of cold water, and having the head of the child held over it, face downwards, filled a coffee pot (they had no pitcher), and poured from it a steady stream upon the occiput in such a manner that the water ran off into the bucket beneath.

I had poured on two or three gallons in this manner, when suddenly I was startled by the child making a long, gasping inspiration, accompanied by a convulsive movement of the arms. My first impression was that it was dying. Raising its head, however, I saw that its eyes were open, and that its breathing was rather better than before the treatment was commenced. The eyes were almost immediately closed again, and somewhat encouraged, I again poured on the water as before. In a very few minutes the child began to move, and the breathing became more distinct; continuing the use of this remedy a few moments longer, it uttered a feeble cry.

I now desisted for a time, with a view of administering a solution of sulphate of zinc in warm mustard-water, but during the time occupied in preparing it the child relapsed into such a stupor that it was found impossible to rouse it by ordinary means sufficiently to enable it to swallow.

I again had recourse to the cold water, and with the same happy effect as before. In a very short time the child was once more roused to susceptibility, and cried out quite lustily. We now forced it to take a few doses of the emetic, which, aided by tickling the fauces, produced free emesis in half an hour.

The matter vomited gave but little evidence, however, of the presence of the medicine.

Very little subsequent treatment was necessary. I ordered that small quantities of wine-ghy should be given occasionally, and that frictions to the lower extremities be made with warm infusion of mustard, to obviate the resulting debility. In two or three days the child seemed to have regained its usual health.

CASE 2.—James H.—, *æt.* 19, a blacksmith's apprentice, had been subject to neuralgia of the face, for the relief of which he used the camphorated tincture of opium, or purgative elixir. About the middle of February, 1857, being attacked with the disease, and not having any of his customary remedy at the time, he procured from a neighbor a vial of laudanum, and being under the impression that the doses of the two articles were the same, he poured out a large tablespoonful and drank it. This occurred at ten o'clock in the forenoon. In a few minutes he began to feel drowsy, and went to bed. About four o'clock, p. m., one of the members of the family went up stairs for some purpose, and found him in what was supposed to be a dying condition. A messenger was immediately dispatched for medical assistance, and the writer was summoned to see the case.

I reached the bedside of the patient about five o'clock—seven hours after he had taken the medicine—and learned the above particulars.

He was then under the full poisonous effects of opium. His surface was cold and clammy; his breathing irregular, slow, and stertorous—respirations eight in the minute; the pulse full, slow, and very irregular; the pupils were tightly contracted and totally insensible to light; the countenance calm and pale.

I at once endeavored to rouse him by speaking to him in a loud voice, by roughly shaking him, and by striking him smart blows with the open palm. These failing, we took him from the bed with the intention of moving him about the apartment between two assistants, but he was unable to bear the slightest amount of weight on his limbs. We then placed him on the bed again, and commenced beating the soles of his feet with wet towels. This also failed to elicit the least token of sensibility. I then dashed cold water in the face, hoping that I might rouse him sufficiently to enable him to swallow an emetic, although I thought it improbable that any of the poison still remained in the stomach. Although this caused him to start, and move his hands towards his face, yet as soon as the dashing of the water ceased, he at once became insensible again.

I now concluded to use cold affusion to the head; and having everything properly arranged, commenced pouring the water upon the head from a large pitcher held at a height of about eighteen inches. The effect appeared almost magical. Before the pitcher was emptied he opened his eyes, and evinced by his actions that the treatment was unpleasant. It was continued, however, and in a short time he was fully aroused. Nausea and vomiting now supervened, and the retching was so violent and long-continued, that all remaining symptoms of drowsiness were banished. A cup of strong coffee finally checked this and completed the cure.

CASE 3.—Mrs. H.—, the wife of a clergyman, had been suffering several days with severe neuralgia of the rectum, caused by the irritation of internal hemorrhoids. I had been using a great variety of remedies, but, as is usual in such cases, none produced more than temporary relief.

On the evening of May 7, 1858, the pain was unusually intense, and I ordered a suppository containing one-third of a grain of sulph. morph. This gave almost entire relief from the pain, and she passed a tolerably comfortable night. Next morning, however, she awoke with headache, an intolerable itching, and nausea and vomiting, which continued throughout the day, and she positively refused to use opium in any form again. In the evening the pain returned as severely as before. I ordered the bowel to be cleansed by a laxative enema, to be followed by an injection consisting of a watery solution of extract of belladonna. I used the Shaker preparation, and laid out a portion containing about one

grain, directing that it be dissolved in two ounces of water, and thrown into the rectum and retained there.

About midnight I was hastily called to see the lady, and on my arrival found her surrounded by her friends, who were greatly alarmed at her condition. She was lying on her back in bed, completely insensible. The face was of a bright-red color, and somewhat swollen; the breathing slow and quiet, entirely without stertor; pulse 130, small and hard. The eyelids were closed. On separating them, the globe appeared injected and prominent; the pupils were widely dilated, and directed forward with a fixed vacant gaze. The patient appeared entirely unconscious, although she occasionally made an apparently painful attempt to speak. The muscles of the face, particularly about the mouth, moved convulsively. The arms were also slightly convulsed. The skin was warm and perspiring abundantly.

The husband informed me that inasmuch as the anodyne enema I had ordered had failed to allay the pain, he thought best to repeat it, and did so in *one hour* after giving the first. He said he had used a piece of the extract about the size of a *pea*—that he thought it was about the same size as the portion I had used. He further stated that in a short time after using it the patient complained of feeling very warm, of some derangement of the head, and of an unquenchable dryness of the mouth and throat, with difficulty of swallowing. She also complained of confusion of vision, of giddiness, and of headache of a beating, throbbing character. These symptoms were followed by a light, good-natured delirium, a wandering loquacity, and extravagant, ridiculous actions, together with occasional nausea without vomiting, and ineffectual attempts to urinate.

Various means were used to rouse her, without effect. Ammonia was cautiously applied to the nostrils; she was spoken to in a loud voice and roughly shaken, but "still she slept."

My first object was to remove any of the poison that might yet remain in the bowel; and for this purpose I ordered a large enema of thin gruel. After this had been administered, I had preparations made for using the cold water. A large tub was placed on the floor near the side of the bed, and the patient being placed crosswise on the latter, with the head and shoulders projecting, and supported by an assistant, I commenced pouring a steady stream upon the back part of the head and neck. In a few minutes she opened her eyes, but reclosed them immediately. The face became gradually paler. In about five minutes she made an attempt to articulate, and pointed towards her mouth. Some water was put into her mouth, but she could not swallow it.

The use of the cold affusion was now suspended, as the patient appeared to be cold and shivering. She was placed in bed and lightly covered. In the course of ten or fifteen minutes her skin became hot, the face was flushed, and she again fell into a profound sleep. Once more the cold water was employed, and soon she again became conscious. A piece of ice was now placed in her mouth, and appeared to afford her much relief, although she could not articulate with sufficient distinctness to be understood.

The enema was now returned without any admixture of feces, but containing a considerable quantity of the belladonna, as was made evident both by the color and odor of the discharge.

The patient, although drowsy for some hours, recovered without the use of any other remedy.

Her vision remained dim and confused about three weeks.

ART. 18.—Cases of Aneurism of the Cerebral vessels. By Dr. GULL, Physician to Guy's Hospital, &c.

(*Guy's Hospital Reports*, Third Series, vol. v., 1859.)

This paper is a valuable contribution to the literature of the subject. It contains synopses of the symptoms in twelve cases of aneurism of the basilar artery, in six cases of aneurism of the middle cerebral artery, and in six cases of aneurism of the anterior cerebral artery in the substance of the hemisphere. Dr. Gull also gives six other cases in detail. The result of the whole is to

confirm us in the belief that, "although we may from the circumstances sometimes suspect the presence of aneurism within the cranium, we have, at the best, no symptoms upon which to ground more than a probable diagnosis."

ART. 19.—On phosphatic urinary deposits in over-worked brain. By Dr. PARKES, Physician to University College, London.

(*Montreal Medical Journal*, May, 1859.)

"In all ordinary febrile diseases," says Dr. Parkes, in a clinical lecture recently delivered, "the curious fact has been made out, and now verified over and over again, that the chlorides disappear from the urine. Various arguments and explanations go to show that this absence or disappearance is an actual 'retention' of the chlorides; thus in typhoid fever, in one case, we had an entire absence of chlorides; so it is also often in rheumatism. The immediate pathological cause of this is still unknown. An absolute want of chlorides or chlorine is perceptible in a most marked manner in pneumonia. This diminution advances or commences early with the period of hepatization, and goes on for days; we always look upon it as a favorable symptom, as it is sure to be, when the chlorides make their appearance again in the urine in such cases; the chlorides, in fact, are increased as the urea is increased, and this is tantamount to saying—as the normal physiological changes in the body supersede the diseased changes or actions set up by the pneumonia, or capillary bronchitis, for it is the same as regards this phenomenon in both diseases.

"Now it is a curious fact, also, that there are two or three diseases of a rather striking character in themselves, and in these the chlorides are enormously increased. One of these diseases is ague; the chlorides increase during the cold fit, and go on to increase as well as the urea. The other disease is dropy, with great diuresis. Here 500 or 600 grains of chlorides a day (three times the normal amount) will be given off. The chlorides are all increased very much in the disease known under the name of *diabetes insipidus*. We have had frequent opportunities, and shall have again, to refer to these curious facts in some other of these clinical lectures.

"The next constituent of the urine that I wish to draw your attention to is the phosphoric acid, or phosphates, given off in disease and in health.

"Now, you will do well to remember that of the phosphoric acid contained in the urinary secretion, one-third to one-half, though no doubt it has some special function to perform in the system, is obtained directly from the food. If patients suffer from insufficient food, as amongst children badly nursed, or our Poor-law patients and dispensary patients, then the phosphoric acid in the urine is diminished or disappears nearly altogether. The phosphoric acid in the urine usually exists in combination as acid phosphate with potash, sometimes with soda, lime, and magnesia, but not with ammonia. You know already that there is a large amount of phosphate of magnesia in common bread, also in meat; but this, as well as phosphate of lime, requires acids in the stomach to dissolve it. You know, also, the old distinction of alkaline and earthy phosphates in the urine; the proportion of these are as five to one, and the total amount of phosphate for an adult may vary, so much as from a drachm and a half to five drachms, given off in the urine, but depending in a great measure on the quantity and character of the food.

"The phosphoric acid, on the opposite hand, formed in the system itself, comes directly from the disintegration of certain tissues in the body, such as the disintegration of nerve-tissues in particular; and this brings us to the consideration of a most important subject—the phosphoric acid formed in nervous or convulsive diseases from the exercise of the brain and nerves; and I may also add, from the disintegration also of muscular tissues. But before we come to that subject I may say a few words to make more clear what I mean by phosphatic deposits; and I may begin by saying that what one reads even yet in what are thought to be 'standard books,' as the phosphatic diathesis in patients, is altogether a mistake; there is no such thing as this diathesis. But if we place some urine, which is feebly acid, over the flame of a spirit-lamp, and boil it, a change takes place in some remote manner, like what is seen in

what is called the phosphatic diathesis. The neutral phosphate of lime is divided into two parts—a basic phosphate is thrown down and an acid phosphate remains in solution. The same occurs in the magnesian phosphate salt; these basic compounds fall down, but on the urine standing, they partly redissolve again. It is said, as a theory to explain the change, carbonic acid is driven off by the boiling, or urea decomposed; but be this as it may, the fact of the decomposition is enough for us, in a clinical point of view: the subject is indeed of very great importance to men, especially in surgical practice, where this so-called phosphatic diathesis is often encountered from disease of prostate, or diseased mucous membrane of the bladder from stone. A deposit of mucus in the urine will lead to such deposit of phosphates, by the mucus decomposing urea. The prolonged exhibition of alkaline remedies may also induce a deposit of phosphates. It has been even said, and is practically held to be true by surgeons, that the mucous membrane of the bladder itself has the power of forming phosphatic deposits. The surgeon's finger in lithotomy will occasionally feel a coating of phosphates; but I don't know that this point has been sufficiently studied to decide whether this is a phosphatic deposit.

“Now, as to this often vexed question or hypothesis of prolonged action of brain or nerve-tissues being invariably followed by disintegration of nerve-cells and deposits of phosphates in the urine, though a very fashionable theory, I think the evidence is not at all decisive one way or the other. It is still a moot point on the confines of psychological science. You will perceive from what I have just stated that many circumstances, such as deranged health, excessive use of alkalis, prostatic disease after fifty years of age, &c., may lead to deposits of phosphates in the urine. Now, I need not say that prolonged mental work, or over-excitement of the brain, will lead to impaired health; the urine then becomes alkaline. I believe that after severe mental labor, such as that of reading up for University honors, a deposit of earthy phosphates in undue amount appears in the urine. I very much doubt, however, if it be solely from disintegration of nerve or brain-tissues, but from the constitution of the urine, as I pointed out a few minutes ago, being altered. In diseases where we have delirium, it is said also that we find excess of phosphoric acid in the urine. These physical or psychological reactions of the mind over the body are, no doubt, too much neglected at present; the question, in fact, may be said to be still *sub lite*, or ‘not proven.’ There is no doubt that emotions of various kinds react also on the nervous system. And it is strongly insisted that in chorea, which is very often the result of simple fright or emotion reacting on particular parts of the brain and nervous system, there you have large deposits of phosphoric acid in the urine. If the fact be really a fact, as it is stated to be, it is one of the greatest interest.

“All I can say is, that a very reliable authority, Voegel, has examined the subject in over a thousand cases of this kind and of meningitis, with all the resources of the most accurate chemistry to furnish him with quantitative analyses of the phosphates in the urine, but at the end of his most laborious researches he is unwilling to commit himself one way or the other to any opinion on the subject! There is, no doubt, something in these finer mental actions, which, though they may produce death by ‘shock,’ or may produce such formidable symptoms as those of chorea, hysteria, epilepsy, &c., still may not be measured by the chemical balance. But at the same time I feel it right to tell you that both in America, in Germany, and France, the discovery of phosphate in the urine, after inflammation of the brain or nervous excitement engaging the brain-material, has been strongly insisted upon as an actual fact.

“In rickets, according to the excellent authority of Lehmann, the phosphates are decidedly increased in the urine, as also in tuberculosis; this latter fact agrees with the view now generally entertained that in the process of cell-formation the most essential inorganic element is phosphorus in some of its forms or combinations. It is said oxalic acid is sometimes found, and carries off the earthy phosphates in rickets, &c.; no doubt there is a coincidence of the two generally in the urine in such cases as I speak of, but still phosphate of lime is not soluble in oxalic acid. Phosphate of lime as well as phosphate of magnesia, as found in the urine, it is well to recollect are in the condition

of amorphous powders, while the ammoniaco-magnesia phosphate is in crystals. If you wish to be correct, I think it is as well you should take particular note of this, as some of the class books may mislead you.

"There are fallacies of 20 per cent., even in the best concerted plans of estimating the phosphates, so that we are as yet only at the threshold of the inquiry; but I would advise pupils to make themselves familiar with these 'Volumetric methods' of Liebig, which are very ingenious; and as regards the phosphates the 'Volumetric' plan is the best we have.

"There is no doubt that the phosphates are very much influenced by food and exercise, as already referred to; then, again, they are diminished in amount by such affections as diarrhoea, by which phosphates are passed off with half-digested food, these phosphates having never entered the blood at all. The study of the phosphates is yet in its infancy, and how phosphoric acid acts in combination with iron and lime, or in cod-liver oil, in building up nervous tissues in process of 'wear and tear,' or how it acts in such diseases as rickets, chorea, epilepsy, is altogether a very new and very instructive subject of chemical research."

ART. 20.—*The Cerebro-Spinal Symptomatology of Worms, especially Tapeworms.*
By Dr. T. P. HESLOP, Professor of Medicine in Queen's College, Birmingham.

(*Dublin Quarterly Journal of Medical Science*, May and August, 1859.)

Dr. Heslop's essay on this subject is of a very elaborate character. Fifty cases are given in detail. The views of other writers are fully stated. The conclusion is, that the cerebro-spinal disturbance caused by worms has been much underrated.

"Now, I venture to think," says Dr. Heslop, "that there is an arrangement of symptoms in most cases of worms, and more especially in tapeworm, which ought to direct us to the question, Has the patient worms; and, failing a satisfactory reply to this question, should compel us to take the requisite means to arrive at one. I have too often given evidence of my views on this matter in the course of this paper, to render it now necessary to make a detailed exposition of all the symptoms which more or less cogently suggest to the mind the presence of worms, and the fifty cases I have reported are sufficiently explicit as regards my main object. Those who pay an exclusive attention to the digestive disturbances, to the itching of the nose and anus, the foul breath, the varying appetite, will be often right in their diagnostic efforts, whether affirmative or negative, when they have to deal with infantile life, or with the round and threadworm; but will be very rarely indeed led to a sound conclusion, when their inquiries refer to adult life and to the tapeworm; and this, too, whether in the affirmative or negative direction. For such troubles are frequently but little marked in tapeworm; and, when present, are wanting in value unless associated with other phenomena. It is in disturbances of the nervous system, associated with these, that we find the best basis for a provisional diagnosis of tænia. When such disturbances, amounting often to convulsive movements of an epileptic form or hysterical character, especially when occurring in a man, coexist with signs of an abdominal disorder, as precisely laid down by Dr. Wood, the possible existence of the worm should be suspected. With this, in the main, Bamberger seems to agree. It should never be forgotten, that in the vast majority of cases of disease which come before us, cerebral disturbances are merely sympathetic;" and if these should be well-marked,

* Chomel has so wisely alluded to the point that I cannot refrain from quoting his remarks. "We must first observe, in a general manner, that the two organs which are most ordinarily the seat of sympathetic phenomena are, less often than the other important viscera, the seat of the disease itself. Thus the disorders that we observe in the functions of the brain and of the heart, as cephalalgia, delirium, convulsions even, acceleration of the course of the blood, palpitations, syncope, have, in the great majority of cases, particularly in acute affections, their point of departure elsewhere than in the brain and heart. The great disturbances which supervene in the digestive and respiratory passages are, on the contrary, most commonly connected with diseases of these organs, or of the parts which concur with them in the accomplishment of the same functions. Thus, when I see a pa-

without fever, and with ill-defined, irregular, and alternating digestive troubles, the observer is bound to suspect a foreign body in the intestinal canal, and most probably a parasite.

I have had occasion often to allude to tremors, as occurring in *tænia*, and have marked the absence of mention of this symptom on the part of almost every author, including the eminently practical Heberden. This could have arisen only from the notion that the symptom is unimportant among so many more obtrusive nervous aberrations. But its frequency is noteworthy, and, in this respect, deserves to be placed after headache, giddiness, and accidents in the special senses. There is, however, another highly important reason for bestowing a peculiar attention upon the symptom. Tremor is a less common sign in all diseases than cephalalgia or giddiness. It is more frequently connected with a definite pathological basis, and apart from such basis rarely makes its appearance. Now, if a patient has not recently suffered from a severe or exhausting malady, is not obviously affected with some metallic poison, shows no other indication of general paralysis, or paralysis agitans; and if, moreover, he is not extravagantly addicted to alcohol or tobacco, we ought to look with great suspicion upon marked trembling of the limbs as probably indicative of worms in the intestinal canal. The semiological value of this condition is enhanced by the circumstance that it is an objective state, one that cannot be concealed, and which, if simulated, could only deceive the ignorant. I now, in conclusion, place before the reader, in a summary manner, the conclusions at which I have arrived, and which appear to me fairly drawn from my cases.

"1. That in the great majority of cases of tapeworm, and, though with lesser frequency, in cases of other intestinal worms, more or less serious and peculiar nervous disturbances are apt to arise."

"2. That the most frequent of these are headache, giddiness, various troubles of the special senses, especially singing in the ears, flashes and dark spots before the eyes, imperfect amaurosis, and trembling of the limbs."

"3. That various anæsthetic, and, on the contrary, neuralgic phenomena, are very frequent, usually connected with general lassitude and sense of muscular feebleness."

"4. That, though less frequent than those previously cited, convulsive seizures, partaking of the nature of epilepsy or acute eclampsia, or sudden attacks of insensibility, mixed with syncope,* and, in the female sex, severe forms of hysteria, are also often directly traceable to worms."

"5. That the last symptoms (No. 4) are more common in childhood, and the earlier periods of life, than afterwards: and are more frequently caused by the round and threadworm than by the tapeworm."

"6. That chorea does not appear to be often excited by the irritation of worms."

"7. That a feeble state of the general health generally accompanies the presence of worms; often, in cases of *tænia*, proceeding to marked anemia, so as even to lead to the suspicion of the possible existence of Bright's disease."

"8. That the irritation phenomena of the digestive tube, even when associated with various symptoms referred to the functions of that tract, do not warrant the diagnosis of the presence of *tænia*; and that their absence does not absolutely indicate the absence of the parasite."

"9. That the frequent appearance of the nervous symptoms above related, without a well-marked relation to any special lesion of the nervous system, especially if alternating with periods of perfect or nearly perfect freedom, should engender the suspicion that worms are present. If to those symptoms are added various ill-defined disturbances of the functions of assimilation, in-

stent the subject of delirium, convulsions, a severe cephalalgia, I am induced to seek for their cause in distant organs before questioning the brain—as, in intense fever, I am led first to search its point of departure anywhere else than in the heart" (*Elements de Pathologie Générale*, p. 484, par M. Chomel, fourth edition, Paris, 1854.)

* In this chapter on Lipothymia, Heberden says, that "*defectio animæ sæpe accedit umbra in puerili ætate.*"

cluding occasional colicky pains, without marked vomiting, pain after food, or decided emaciation—it is in the highest degree probable that worms are the source of the symptoms, and steps should be taken to obtain assurance of their existence, or the contrary.

"10. That it is probable that many of the sympathetic phenomena of vermination are connected, not with their direct irritation of the mucous membrane, with which they are in relation, but with a general disorder of the system, partly resulting from the parasites, and partly the cause of their maintenance and development in the intestinal tract."

ART. 21.—On Laryngotomy in Hydrophobia. By Mr. SCRIVEN, First Assistant-Surgeon in the Presidency General Hospital, Calcutta.

(Lancet, April 23, 1859.)

It may be doubted, we think, whether the disorder in this case was true hydrophobia, and Mr. Scriven allows this doubt. It may be doubted, also, whether the operation was so positively beneficial as is supposed by the author. The case, however, is one of considerable interest, and we give it without abbreviation.

CASE.—J. M.—, seaman, aged nineteen, admitted into the General Hospital, Calcutta, July 23d, 1858. On admission, had been one month in India, and was suffering from slight choleraic diarrhoea, which yielded to simple treatment, sulphuric acid, &c.

On August 8th, was recovering—in fact, feeling well, and expecting to go out on the morrow; but about eight P. M. was seized with a sudden feeling of "weakness, wind at stomach, and difficulty of breathing," while on the stairs, and was obliged to hold on by the balusters. The apothecary was sent for, and gave him a dose of peppermint, which was said to have relieved him temporarily. At a quarter to nine, however, I got a note to the effect that a patient in the ward was complaining "of choking." I went over at once, and found the man sitting on the bed, laboring for breath, yet taking deep sighs, and filling his lungs completely; in great distress, with small rapid pulse, perspiring profusely, crying out that he was dying for want of breath, and requesting me to do something for him immediately. Presently a decided spasm of the glottis came on, with crowing inspiration, like laryngismus stridulus in the child. I gave him a cup of tea, which he drank with apparent avidity, though at first he said it would choke him. A mustard plaster also was applied to the chest. After taking the tea he seemed somewhat relieved, having lost the crowing inspiration, but still laboring for breath as at first. In a very few seconds, however, the spasm and crowing returned, and were again apparently relieved by a draught of water. This was repeated three or four times, when, finding the relief only momentary, I sent for a mustard emetic (a teaspoonful of mustard and four ounces of water). This took a few minutes to prepare, during which I did nothing except try to pacify the patient, and feel the larynx, in order that I might be ready to perform laryngotomy if necessary. When the mustard emetic came he drank some of it, and then by a movement, apparently half convulsive, threw the cup containing the remainder of the liquid on the ground, and fell back upon his bed, unable to breathe from spasm of the glottis; there was now no crowing, for the glottis was completely closed. I had my penknife ready, and plunged its small blade into the larynx through the crico-thyroid membrane. The man was struggling so much at the time, that I only succeeded in making a small opening corresponding to the width of the blade, through which, however, the air whistled, and the spasm of the glottis, at least the distress consequent on it, was at once removed. Now he began to talk very fast and loud, and to express excessive fear of death, calling upon God to have mercy upon him, at the same time struggling, so that it required about six men to hold him. By seizing opportunities, I gradually managed to enlarge the opening into the larynx by cutting through the cricoid cartilage, and to insert a quill, through which he breathed freely. He still continued talking in the same rapid way, and soon became decidedly incoherent, calling upon the devils to come and take him away, and inquiring what he had done

"on this 19th day of June" to deserve such punishment. It was impossible to quiet him or arrest his attention; but any sudden movement or impression made him start and talk the louder, as when I placed my hand on the temples to feel the artery. I sent for a bag of water (a bheasty's mussick), and poured it on his head; but it had little or no effect, except to increase distress and excitement when the water went into his mouth. I tried to give him some brandy and water and some small lumps of ice; but they did not appear to do good, and the greater part of both he managed to spit out.

After this, about 11 P. M., I removed him to a quiet place, and the attendants ceased to hold him. He now struggled much less, but still continued to talk in the same strain, though less loudly, occasionally spitting out with apparent difficulty some viscid saliva. At this time, his pulse was found small and wiry—160; skin hot, but moist; great sensibility of surface; he started even when touched. The abdomen seemed to be the most sensitive part. The pupils were dilated, and insensible to light. Respirations were principally thoracic. He had no movements which could be distinctly called involuntary; he swallowed a little brandy and water that was dropped into his mouth. He continued in this state for half an hour; after which, without evident cause, he became greatly excited, bawled so as to be heard all over the compound, and required to be held in bed by several men, at whom he spat frequently. Suddenly, it appears, he became sensible (about midnight). When spoken to by the wardmaster, he stood up to have his bed put to rights, and then lay down, took a little brandy and water, and went to sleep. He was awake at four o'clock on the morning of the 9th, when I went over to see him; quite cool and rational, but complaining of feeling very weak. I put a silver bent tube into the larynx, the quill having come out. He went to sleep again, and was comfortably sleeping when seen at six A. M. At half past eight, he was awake; skin cool and moist, pulse 100, soft; respirations 28. Complained of weakness and difficulty of coughing from the opening in the windpipe; was perfectly collected, described the sensations which were premonitory of the attack, as given at the commencement of this history. He said he remembered the cut being made into his throat, but lost himself entirely very soon after; remembered the pain in his throat at the time of the operation, but did not know where he was, and was never in such a fright in his life.

The patient has only been twice on shore in India this time (he was out here last year), with the exception of coming to hospital. He is perfectly sure that no animal bit or licked him on those occasions; and there were no animals on board his ship; was bitten by a dog on the inside of the right thigh nine years ago; and the dog was afterwards killed for biting people, but was not mad; was never bitten by any other animal, and never had a dog of his own but one, which he gave away when he went to sea four years ago. The cicatrices of wounds formed by two teeth are still distinctly visible. Ordered sago diet; beef-tea, two pints; port wine, eight ounces.

Aug. 10th.—Seems pretty well; pulse 100, feeble. To have meat diet; got the tube out yesterday evening, and did not breathe through the wound in the night, as the skin overlapped it. It was introduced again, and tied by strings placed round the neck. Particular inquiries were made to-day about other possible causes of his symptoms. He never had epilepsy or paralysis. The glands of the neck are not enlarged; but there is one small superficial abscess just below the jaw, which, he says, he has had since he first got the cholera. Never had any laryngeal affection before, nor difficulty of breathing. Bowels regular, and stools solid and healthy, as they were also before the attack. Precordial region very slightly prominent; but he never had palpitation; the heart-sounds are healthy, and the organ in natural position, and apparently of natural dimensions. No murmurs along the arteries in the chest, nor other signs of aneurism; liver of natural dimensions; spleen likewise; a slight murmur over the abdominal aorta (not produced by pressure of the stethoscope, but no pain, palpitation, or tumor; no abdominal disease detected; has had no illness since the scarlatina, when he was six years old; says he had a little irritability of the bladder on the voyage home last year, which he attributed to drinking bad water; this got well, and he had no return of it. The urine now is straw-

colored, clear, 1016; no albumen; no deposit seen under the microscope; very slightly acid.

His sensations on taking the mustard, on the evening of the 8th, he thus describes: "It caused a burning in my stomach, which seemed to come up into my throat, and stopped my breath." He does not remember throwing away the cup containing the remainder of the liquid. Says he had difficulty in drinking the water during the attack before the laryngotomy, but drank it because I told him.

11th.—At noon I found him in a very excited state. Ever since the operation, he has had slight emphysema about the chest, which all along he has been inclined to exaggerate; but to-day he magnified it into something terrible, and filled up the wound in the throat and his ears with cotton from his bedding, which he had torn to pieces; this was done with the idea of preventing the entrance of more air. About three P. M. he became decidedly delirious, and was in a great fright about himself; said that he thought I had cured him, but that now he was gone; the blood had come up into his head; his belly and testicles had burst, and his limbs were all swollen. He was naked to take some water; but he said it would choke him; yet he took it. At six P. M., he was violently delirious, and very abusive, talking very loud and fast, and spitting at everybody; said I had killed him by opening his wind-pipe, and that I had done it because he was a Catholic and I a Protestant. He was a little feverish, and his tongue dry; pupils dilated and immovable. The tube was removed from the larynx, as he would not keep it in during this delirium, and the wound now remained freely open of itself. I administered chloroform by inhalation; he took three drachms and a half, and fell into a tranquil sleep, in which he continued for three hours. During the inhalation, the pulse sank from 120 to 100. On awaking, he was still delirious, but quiet; covered himself with the bedclothes, and was apparently sleepy; yet he did not sleep, but continued in this drowsy state.

12th.—At one A. M., he expressed a wish to see me. I found him more collected, though excited. He asked forgiveness for having spit at the gentlemen, and inquired if it were really true that he had done so, as he thought he remembered doing it during his dream. Thought he would be much better if he got some of the same drug that put him to sleep before. I therefore gave him chloroform again; he took two drachms, and again fell into a tranquil sleep, which continued till half past five A. M. When I went to him, about six A. M., he was drinking water, and eating bread and butter, and said he was very hungry; still talked about being swollen, slightly incoherent; manner a little excited; skin cool and moist; tongue moist and clean.

13th.—He was somewhat incoherent all day yesterday; ate some food, but did not take his meat; became more excited towards evening, and began to spit a little as on the previous evening; was quieted by the inhalation of chloroform; took a drachm and a half, and slept all night; is known to have awoke only once, at nine P. M. Appears a little busy and excited, but does not talk incoherently at present; says he is much better, that the crackling (i. e., the emphysema, in his chest is almost gone, and that he has now no swelling of the limbs. Tongue moist, slightly coated; pulse soft, 84; skin perfectly cool and moist; bowels not open since the night of the 10th. Ordered six drachms of castor oil immediately; port wine, sixteen ounces.

14th.—Continued much in the same state all day yesterday. Delirium increased in the evening; there seems to be always some great fear of death connected with it. Last night, said he was much worse; showed me his hand, remarking that the pulse did not beat. Chloroform administered again. Took two drachms, but the effect did not last. Went to sleep three times while inhaling this; but awoke in a few minutes; the third sleep was rather a deep one, accompanied by puffing of the lips during expiration. He was ordered the following: Bartley's sedative solution, forty minims; peppermint water, one ounce; to be taken at bedtime. After taking the draught, he slept an hour and a quarter. With this exception, he has been awake all night, and about 1 A. M. became very noisy; threw the contents of the night-stool over the sergeant and coolies. Is still delirious this morning; no fever; skin cool and

moist; pulse 100, soft; bowels freely opened yesterday; did not eat his meat, but took the greater part of his beef-tea and port wine. Two P. M., chloroform, half a drachm; camphor mixture, one ounce; to be taken every two hours. In the evening, Battley's sedative solution, one drachm; water, one ounce; to be taken at bedtime.

15th.—Took his medicine up to midnight; would not take it afterwards; very delirious and troublesome all night; since midday yesterday has been perspiring freely; does not eat, but takes his beef-tea and port wine; is quiet and sensible this morning; pulse soft, 72; complains of headache. Repeat chloroform draught; anodyne draught at bedtime.

16th.—Took his medicine yesterday regularly up to 3 P. M.; got a little sleep during the day, the pulse varying from 72 to 76; ate nearly all his food, and was not at all excited, though not perfectly coherent. In the evening he was somewhat worse; thought he was dying, and requested me to send his clothes and money to his father. Took his draught at bedtime and slept almost the whole night. Passes urine freely, but bowels not open; pulse more feeble than yesterday, only 72; skin moist and cool; tongue rather dry; is delirious, but not noisy; was crossing himself, and muttering some kind of prayer, when I saw him this morning; has had no chloroform since 3 P. M. yesterday. Repeat castor oil, half an ounce, immediately.

17th.—Got his fingers upon the wound in the throat yesterday, and made it bleed to a most surprising extent, most of the blood running into the wind-pipe, and being coughed up immediately. This weakened him considerably, and increased the frequency of his pulse, but he nevertheless ate his dinner, and slept the whole night without any opiate. He is still delirious this morning; says there is a bad smell from his body, which is injurious to other people; pulse soft, feeble, 88.

19th.—Sleeps well at night, but is delirious during the day; is melancholic; always fancies he is dying, but has no particular complaint to make of uncleanliness; wound in the throat open, suppurating; appetite good; tongue clean, moist; pulse 92; bowels open.

25th.—The same wound in throat closed internally since yesterday. It is granulating. He does not breathe through it now. Pulse soft, 68 (lying); skin cool and moist; pupils natural; tongue clean and moist; looks sad; still fancies he is injuring other people.

Sept. 8th.—The remaining notes are but a repetition of this last. He has the same delusions, and refuses various articles of diet in succession, in the hope of diminishing this smell from his body, which he considers so injurious to all around him. He sometimes tells me he knows he must die for the injury he has thus produced, and the number of deaths he has caused. He has become thin during his illness, but otherwise appears now to be in good bodily health.

ART. 22.—Chorea cured by an attack of Measles. By Dr. KENNEDY.

(*Dublin Medical Press*, June 1, 1869.)

Commenting upon this interesting case, Dr. Kennedy says: "I have not before met any instance where chorea seemed to follow so directly on acute disease, but various nervous symptoms are, by no means, uncommon as a consequence of ordinary fevers. In the present instance, a week had not elapsed since the decline of the rash till chorea was well marked. The most striking feature of the case was, however, the cure—as it may be called—of the chorea on the appearance of the measles. Still the cure, which I thought was very likely to occur under the circumstances, did not surprise me. I had known cases where diseases of the skin, which had persisted for months before an attack of fever, disappeared subsequent to that event; and we all know how an attack of gout often frees the system as if by magic from sufferings of long duration. In truth, fevers of any intensity alter profoundly the whole constitution; and so it was, or appeared to be, the result in the present instance. Neither must we forget the usual character of an attack of chorea; for of all the affections which come under the head of curable, it must be placed amongst those which are most obstinate. Two months might probably be considered

a reasonable time to cure it in; but here it was accomplished in less than a fortnight. On this account alone then, if for no other, the present case seems to me worthy of being recorded."

Case.—In February of this year the youngest members of a family of seven became affected with scarlatina, so slight, however, that assistance was not had till they were up, when most became attacked with an eruption like boils, and yet not exactly that affection. I found them all desquamating. At this period the eldest, a young lady between 13 and 14, sickened, with symptoms fully as like measles as scarlatina. It turned out, however, to be the latter disease, and in a severe form, being attended with raving, &c. While convalescent, and just after all rash had disappeared, I observed signs of restlessness about her, which, in the course of four or five days, increased much, and finally chorea developed itself in a form not to be mistaken. Her arms were in a constant state of justification, the left being the most engaged, and the head was being constantly tossed about, it being found impossible to confine her hair. Her power of swallowing became much affected, and also that of putting out her tongue, nor could she sew, and her expression was of the fatuous character, which so often marks the disease. As soon as her state allowed of it—for she was still in bed when the chorea appeared—she was put on treatment, including the shower-bath, &c. Whilst matters were in this state, and before any impression could have been made on the disease, measles broke out among the other children of the family, and in due course attacked this patient. It at once struck me that the measles might be the means of curing the chorea, and with that feeling I thought it right to intensify, as it were, the acute disease, and though there appeared no call for wine, I did not hesitate to give it. For three days the choreic symptoms were very severe, so much so that the girl did not get a wink of sleep. By that time the rash had come out to a degree which is rarely seen. It then began to decline, and with it I had the pleasure of observing that the convulsive movements subsided *pari passu*, and at the end of another week there was scarcely a sign of them to be seen. Nor had I subsequently occasion to resume the special treatment for chorea. The young lady has been some weeks in England, and I am informed that, at present, she shows no symptoms of the disease. It may be well to state that I could not detect any morbid sound in the heart.

ART. 23.—*Veratrum Viride* in Chorea.

By Dr. PAUL DE LACY BAKER, of Eufaula, Alabama.

(*Southern Medical and Surgical Journal*, Sept., 1859.)

Dr. Baker's experience is confined to one case of chorea, but he corroborates it by three similar cases, furnished to him by a friend—Dr. Terry, of Eufaula, Alabama. Dr. Baker also suggests a trial of the drug in tetanus and hydrophobia.

1. *Dr. Baker's case.*—On the 7th of June, 1858, I was called to a young lady suffering from a violent attack of chorea. The mother informed me that it had been very gradually coming on, for a month or two; her symptoms, when first visited, were distressing to the last degree; her entire muscular system was in continuous and tumultuous commotion, so much so, that it was with difficulty that she could be kept upon the bed. This case passed on from bad to worse, notwithstanding the most assiduous attention and energetic treatment; tonics, antispasmodics, and anodynes were exhausted without avail. The spine and nucha were cupped and blistered without benefit, chloroform was administered both internally and by inhalation—in fact, every remedy that could be legitimately suggested was resorted to, but without success, and it seemed at last that the girl must die from exhaustion and want of sleep. Opium, and its various preparations, appeared to make her worse; once or twice I suggested the employment of *veratrum viride*, but it was postponed until the 18th of the month, when my partner, Dr. Thornton, under whose especial care the case had been, was called off to Georgia. On that day, just as I was starting to visit her, my friend Dr. Terry, hearing of the unusual violence and obstinacy of the case, stopped me and proposed that I would give *veratrum viride* a trial,

assuring me that he had thrice used it in chorea with the most satisfactory results. So, I concluded both from my own experience and from his positive statement, to withdraw all other medication and give the *veratrum viride* a full and fair trial. The family had given up all expectation of her recovery. I told them, however, on my arrival, that I had come with a new remedy, the last and only one that had not been tested, and that I felt convinced that the girl would recover under its use. I at once commenced its administration, and as she was gradually brought under its influence the turmoil began to cease; the face, which had been worked by its muscles into the most ludicrous and horrible distortion, became placid and intelligent, the head had ceased its everlasting jerking, the extremities lay still, the body left off writhing, and the patient quietly passed into a peaceful and profound slumber. This sleep was deep and long, as it was the first, with few and slight exceptions, that she had had in nearly two weeks, and the quiet that the muscles now received was all that had occurred save during those few and short slumbers. At a subsequent visit I found the family cheerful and hopeful and the patient quiet and sleeping, the pulse but little depressed; there had occurred no vomiting. I roused her, and, to my great satisfaction, when awake, there was no indication of the extremities, and but very little twitching of the muscles of the face.

In this case I thoroughly tested the influence and power of *veratrum viride* for the first few days; if its administration was withheld the commotion began gradually to return, but all would again become quiet upon resuming its employment. At first, so continually did she sleep under the quiet that it induced, that the family called the *veratrum* preparation "the laudanum mixture," notwithstanding they were aware that she had taken large quantities of morphine, without benefit, in our efforts to induce sleep. The *veratrum* was continued for several days, the convulsive movements ceased altogether, the muscles became completely obedient to the will, and the lady returned to perfect health and blooming beauty, under a judicious and properly regulated tonic course of treatment.

2. Dr. Terry's cases:

CASE 1.—I was called in Randolph County, Georgia, to visit a child aged twelve years. It had been confined to bed for three weeks, and was reported to have been under treatment for about six weeks; first for worms, with calomel, spigelia, warmsseed, &c., and subsequently for chorea (with which I found it suffering), with cinchifuga, iron, quinine, and the usual routine treatment, until the child was apparently dying.

It is not in the power of language to convey a proper conception of the truly pitiable state in which I found this child; no description can afford any adequate idea of its appearance and condition. It had slept none, neither had it taken any nourishment for days; it was evidently dying from exhaustion and inanition, the muscular commotion was violent, universal, and unaffected by sleep; the lips embossed with foam, worked up by a continual clamping of the teeth. I instituted the following treatment: three drops of *veratrum viride* were administered every three hours, the vehicle for each dose being a teaspoonful of gum water, a small portion of which was introduced into the mouth every few minutes, until the whole was given, the medicine being in this way rather absorbed from the mouth, probably, than swallowed. In twenty-four hours I had the gratification to see the symptoms greatly improved. The muscles were much quieter, and the child could swallow without difficulty (the trouble in this respect had constituted the greatest embarrassment in the treatment). I continued the *veratrum viride* in connection with iron and quinine. At the end of the fourth day all convulsive action had ceased; the *veratrum viride* was still further continued, though in smaller doses, and at long intervals. Quinine, iron, and generous diet completed the cure promptly.

CASE 2.—Girl, æt. 15. This was an ordinary case. She was purged freely, after which four drops of *veratrum viride* were administered every three hours. Under its use the convulsive phenomena soon disappeared, after which the *veratrum viride* was continued for a few days at long intervals. This case also promptly convalesced under the use of iron, quinine, and generous diet.

CASE 3.—Woman, æt. 36; had borne no children; was subject to menorrhagia,

immediately after an attack of which she was taken with chorea, marked by continued nodding of the head and violent convulsive action in one arm, together with slight jactitation of one leg. In this case I directed six drops of *veratrum viride* every three hours; the fourth dose occasioned slight nausea, and after the fifth dose the convulsive action ceased, when the *veratrum viride* was withheld. There followed, in the course of eight or ten hours, a return of the symptoms; the medicine was again resorted to, with the former quieting result. The doses were then reduced, but continued for several days at long intervals. This case, like the others, recovered under the use of quinine, iron, and generous diet.

ART. 24.—*Observations on Choreia magna.* By Dr. SKODA.

(*Allg. Wien Med. Zeitung*, 36, 1858; and *Schmidt's Jahrb.*, I., 1859.)

Chorea magna is the name given by Professor Skoda to those extraordinary cases, akin to chorea, in which the most characteristic features are paroxysms of jumping, turning, rolling, &c. As a rule, these movements, though often violent and prolonged, are followed by little exhaustion or pain. The cause is yet to be discovered, but it is evidently of a functional rather than of an organic character, or recovery would not be so complete and rapid as it is generally found to be. *Chorea magna*, in Professor Skoda's opinion, is more easily cured than ordinary chorea, or, as he calls it, *chorea minor*, and the disposition to relapse is somewhat less marked. Quinine is said to be the most efficacious remedy, large doses being given if small doses did not produce a speedy change for the better.

ART. 25.—*The comparative value of Zinc in Choreia.* By Dr. STONE, Medical Registrar of St. Thomas's Hospital.

(*Medical Times and Gazette*, Sept. 17, 1859.)

Dr. Stone's conclusions are based upon fifty cases of chorea admitted into St. Thomas's Hospital during the year 1858.

The general summary is as follows: Of 16 cases treated with sulphate of zinc, 13 went out cured, 3 relieved; but 2 of the latter were in a fair way of recovery, and may probably be set to the credit of the medicament. On the other hand, three of those ultimately cured owed their improvement partly to ferruginous preparations, and in one case the zinc had no effect whatever. It may, then, be stated generally, that advantage was derived from the zinc in 14 out of 16 cases. The longest stay in the hospital among these cases was 123 days; the shortest, 14; the average stay, 44.6 days.

Fourteen cases were treated during the same period with preparations of iron; all were cured. The longest stay in hospital was 161 days; the shortest, 6 days; average stay, 44.2 days.

Twenty cases were treated with liq. potassae arsenitis: 18 cured, 1 relieved, 1 died. The longest stay in hospital was 55 days; the shortest, 6; average stay, 26.3 days. Average stay in hospital of the 50 cases submitted to three principal remedies, 37.2 days; average stay of all the 54 cases, 35.4 days.

The results of this analysis are somewhat remarkable, as failing to confirm the usual estimate of the value of sulphate of zinc in this disorder. The iron seems to act more certainly, and the arsenic both more certainly and more rapidly, than the zinc. The average duration of treatment both with iron and zinc, 44.2 days and 44.6 days respectively, is very similar, and both are above the general average of the whole number of cases, namely, 35.4 days; whereas the average stay of the arsenic cases falls as low as 26.3 days. This difference is the more remarkable, as the character of the cases submitted to the arsenical treatment rather exceeded in severity that of the others; and, indeed, the only death recorded belonged to this division.

It remains a question whether the discrepancy between these results and those of some previous well-conducted observations is due to mere accident, or to some real difference in type between cases originating at different times and under dissimilar circumstances.

ART. 26.—Case of Rotatory Convulsion. By Dr. MINCHIN, Physician to the Hospital of the North Dublin Union.

(*Dublin Hospital Gazette*, Sept. 1, 1869.)

CASE.—Francis C—, æt. 4½, of strumous habit, was admitted into the hospital in May, 1859, laboring under acute hydrocephalus. From its mother's statement it appears that the child had not suffered from any ill health during the first three years, having cut all its teeth and got through all the troubles incidental to that period without much difficulty. At the end of the third year it took measles, which confined it to bed for four weeks, and from which it made but an imperfect recovery; in fact, the health never became re-established, for there remained a constant cough, with emaciation, depraved appetite, and a continual discharge of purulent matter from the left ear. A short time before admission into hospital the child was seized with vomiting, intense headache referred to the forehead, disturbed sleep, and occasional convulsions. Although the mother was aware that this illness was connected with suppression of the otorrhœa, she had not observed whether the discharge had ceased previous to the accession of the symptoms referred to, or only during their progress.

On the 24th of May, in the morning, being the third day after admission, the patient presented the following symptoms: great drowsiness, approaching to coma; heat of scalp somewhat less than on the preceding day; eyes half closed; tongue dry; deglutition difficult; respiration oppressed; pulse irregular and weak, about 130, but not to be counted.

In a little more than an hour afterwards, in place of the convulsions, which were wont to recur at irregular intervals, and which, up to that time, had affected principally the muscles of the face and the arms, a new phenomenon presented itself: the left arm and leg were thrown forwards towards the opposite side; then the whole body commenced to roll longitudinally from left to right; the child, meanwhile, being quite insensible to external impressions. Upon being replaced in the middle of the bed by the attendant nurse, the rotation of the body was resumed, and this movement continued during several minutes. Three times afterwards, in the course of the same day, this singular form of convulsive movement was repeated. Next morning there was complete hemiplegia of the right side; the child lay in profound coma, and died in the course of the afternoon.

Autopsy, 26 *hor. p. m.*—Body much emaciated; upper part of both lungs occupied with tubercles in incipient stage. Adhesion at the base of right lung posteriorly.

Head.—Fontanelles ossified. On the convexity of the cerebral hemispheres the arachnoid presented a look of great dryness. Cerebral substance healthy on a superficial aspect, as well as firm to the touch; but when sliced down it exhibited more and more softening towards the central parts. Lateral ventricles distended with clear fluid, nearly three ounces in each. Ventricular walls extremely soft, breaking down readily into curdy flocculi. At the base of the brain was found a considerable quantity of a yellowish semi-fluid effusion, underneath the arachnoid. This extended even below the pons, and obscured the origins of all the nerves in this neighborhood. Special care was observed in removing the encephalon, to avoid injuring the nerves, particularly the auditory; no appreciable difference, however, could be perceived in the relative appearance of this nerve at the two sides.

Cerebellum.—Imbedded in the inferior surface of the left hemisphere was found a firm tubercle of an elongated or oval shape, and about the size of a small almond. This was attached strongly by one extremity to the dura mater, to which it remained adherent on the removal of the cerebellum, leaving a fissure or rent in the substance of the latter. It is probable that this tubercle was developed originally in the dura mater, and encroached gradually on the cerebellum, till it became lodged in its substance; for in the middle of the fossa corresponding to the opposite hemisphere, there existed what appeared to be the commencement of a similar growth, in the form of a rough tubercular

elevation of the dura mater, at which point there was adhesion of the two arachnoid surfaces.

Commenting upon this case, Dr. Minchin says: "Whether to attribute the rotatory convulsions in this case to irritation of the left auditory nerve, as indicated by the long continuance of otorrhœa at that side, and its sudden suppression, or whether the cause of the phenomenon in question is to be sought for in the irritation set up by the upward pressure of the tumor which was found in the left cerebellum, it is not easy to determine. M. Brown-Séquard's experiment upon the auditory nerve appears to have produced an effect different in no essential feature from that observed in the animals operated upon by M. Magendie. The latter physiologist states, that on making a vertical section of the cerebellum, so as to leave one-fourth of the whole adhering to the crus of the right side, the animal begins to rotate, and continues rolling towards the injured side; at the same time the eyes are affected, just as we recollect to have seen in the rabbit whose auditory nerve was punctured by M. Brown-Séquard—the eye on the injured side being directed downwards, the other upwards. Rotatory phenomena occurred also when the crus cerebelli of one side was divided; and these movements ceased immediately on making a subsequent section of the opposite crus. That these movements may be produced irrespective of any appreciable irritation of the auditory nerve, would also appear probable from the following case, related by M. Serres:—

"A shoemaker, æt. 68, of intemperate habits, exhibited, after a debauch, a kind of drunkenness which surprised his friends. Instead of seeing objects turning round him, he seemed to himself to be turning, and in a few moments commenced revolving. When placed in bed he continued to manifest this tendency till he died. Upon examining the head, an extensive lesion was found of one of the peduncles of the cerebellum."

ART. 27.—On the Nature, Seat, and Relations of Neuralgia. By Dr. C. HANDFIELD JONES, Physician to St. Mary's Hospital.

(*Lancet*, Sept. 10, 1859.)

In the majority of cases, in Dr. Handfield Jones's opinion, neuralgia essentially implies a lowering of the vital power and functional action of the nerve, and not an increase—an opinion which, as we have elsewhere endeavored to show, is also supported by the beautiful experiment of Dr. du Bois-Reymond, in which a diminution of the nerve-current is found to be co-existent with the presence of pain in the nerve.

"Now it may be fairly argued," so writes Dr. Jones, "that when the symptoms of debility, and especially of nerve debility, are so apparent, and have so distinct a relation to the particular symptom, this must be itself of like essential character. It can hardly be that the morbid state of the nerve affected can be greatly different from that which prevails so generally throughout the system, especially when we consider the means which avail for the cure of both. Rumbert's metaphorical expression, speaking of anæmic hyperæsthesia (i. e. neuralgia), that 'it seems as if pain were the prayer of the nerve for healthy blood,' is, in all probability, exactly true. The nutrition of the nerve being ill performed, its structure undergoes some molecular alteration which conditions pain. What is true of neuralgia from this cause I believe is true of all cases belonging to the non-organic class. Electrical disturbances, damp cold, malaria, seem to me all to act in the like way as far as we can judge—viz., by deranging the molecular nutritive actions of the nervous structure, and so impairing its function. There are several circumstances which seem to me strongly to support this view. One is the very frequent co-existence of numbness with the neuralgic pain, especially in highly sensitive parts, as the fingers and hands. One cannot say in what the condition producing numbness differs from that producing pain; but it is clear there is no opposition between them; both are often present together, and the numbness commonly remains as the more permanent condition in the intervals of the paroxysms of pain, and even after they have ceased to occur. Now, numbness is evidently a failure of functional action. Of the same import is the occur-

rence of various degrees of muscular paralysis, which is often associated with neuralgia, evidently as an analogous affection of the motor nerves. It yields to the same treatment. The phenomena of myalgia may also be referred to in illustration of the nature of neuralgia. Here we have a manifest instance of the relation of pain to debility; the sensory nerves of the muscles express pain because they are weak; whatever increases the debility increases the pain, and *vice versa*. The relation of ague to neuralgia is worth considering in respect to this question. It is certain that neuralgia may be a manifestation of malarious influence just as much as ague, and that the two may replace each other. It may also be affirmed that in neuralgia (non-organic) from other causes, the pain-causing condition of the nerve must be the same as in malarious neuralgia. Now, in an ague fit there is no doubt that the vaso-motor nerves are in a paralytic state, consequently it is probable that in a neuralgic paroxysm the sensory nerves are similarly affected. Lastly, we may allude to the cure of neuralgia by Faradization as an illustration of its nature. The pain of a sensory nerve and the paralysis of a motor may both be removed by the stimulus of the interrupted current. This surely indicates that both states are similar.

"Even in organic neuralgia, it seems to me a matter of much question whether the nerve affected is in a state of exalted excitability, or simply of deranged and disordered nutrition. In lead poisoning, the motor nerves of the muscles are certainly paralyzed, the pains are diminished (Rouberg: 'by pressure and friction,' and the whole phenomena are indicative of diminished, rather than of increased, vital actions. The curative action of the sulphuret of potassium bath is only intelligible by regarding it as a peculiar stimulus to a great sensory surface, which is reflected from the nervous centres on the paralyzed nerves and muscles. That it does produce muscular contraction, at least in some cases, is, I believe, certain. In gouty neuralgia, if we take colicky and spasmodic affections for examples, the disorder is much more of an asthenic than hyperæsthetic character. The pain and suffering attending a characteristic outbreak of gout in the foot have much more the features of hyperæsthesia than the colicky disorder. That a nerve which receives for nutrition blood poisoned by uric acid should be disordered in its acting, and thrown into a state conditioning pain, is very intelligible, but it can hardly be regarded as having its irritability exalted. On the other hand, the nerve lying in a focus of inflammation, by reason of the active hyperæmia, would seem really to be in a state of hyperæsthesia. Its condition is analogous to that of the nerves of one posterior limb in Brown-Séquard's experiment of transverse semi-division of the dorsal cord, where hyperæsthesia is produced in consequence of paralysis of the vaso-motor nerves, and the resulting hyperæmia.

"Again, when neuralgia results from the impaction of a speculum of bone, the development of a tumor, or the like, in a nervous trunk, although severe pain may be produced, it does not seem very clear that the nervous irritability is necessarily exalted—*i.e.*, that the nerve-filaments, either on the distal or proximal side of the irritant, are more sensitive than they would be naturally. In fact, one would rather expect that the normal function of the nerve would be interfered with. In a case of neuroma recorded by Mr. Toyne in the Pathological Society's Report for 1851, the only symptom was a diminution of the power of hearing. In a case recorded by Dr. Denmark, where severe neuralgia was produced by a fragment of a bullet imbedded in the radial nerve, no mention is made of the painful parts being unusually sensitive. The same may be said of a case recorded by Sir B. Brodie, in which a femoral aneurism produced pain at the inside of the knee. The following case from the 'Dublin Medical Journal,' May, 1848, bears decidedly on this point:—

"C. M.—, æt. 27, widow, mother of four children, had a neuromatous tumor developed in the course of the median nerve, of the size of an almond, in consequence of the nerve having been divided an inch above the wrist by broken glass. If anything, even her dress, touched the tumor, severe pains shot down to the hollow of the palm of the hand, and upwards to the shoulder. She complained much of numbness and coldness of all parts of the hand supplied by the median nerve. The nerve was cut across, and the neuroma

removed. Fifteen months after the operation she was quite free from pain, and observed nothing abnormal, except a remarkable coldness of the fingers supplied by the median nerve.

"In some cases, however, it is certain that the peripheral nervous filaments are truly hyperæsthetic, as in the case related by Romberg (p. 37-44.) In this, however, the hyperæsthesia may be accounted for by the increased supply of blood sent to that side of the face, the arteries pulsating strongly, and the eye being bloodshot and prominent. The same explanation may apply to many other cases where the neuralgia is complicated with hyperæsthesia. The hyperæmia is conditioned by paralysis of the vaso-motor nerves, which run in company with the sensory; and this very circumstance is a further reason for viewing the fundamental condition of neuralgia as one of paralysis rather than excitement.

"From the considerations which have been advanced, I am led to conclude, that in the majority of cases neuralgia essentially implies a lowering of the vital power and functional action of the nerve, not an increase. There are, however, certainly cases in which the painful parts are not manifestly hyperæmic, but are yet excessively tender, and intolerant of the least pressure. In these, it is clear that the excitability of the nervous apparatus is morbidly increased, yet I question whether the term hyperæsthesia is properly applied to them. In the state referred to, any, even the least, excitement brings on or aggravates the pain. This certainly implies an undue mobility of the nerve-structure, a readiness to be thrown into the pain-causing condition, but by no means a real increase of sensory power. It is by no means clear that a part in this state would appreciate two points as separate at a smaller distance from each other than it would when healthy. I should not regard such a condition as identical with that induced by partial division of the spinal cord, as in Brown-Séquard's experiments, or by strychnia poisoning. I think it probable that in these cases the morbid action is seated more peripherally towards, or in, the cutaneous terminations of the filaments; while in ordinary neuralgia the larger ramifications or the trunks are affected.

"From the preceding discussion, we pass to the consideration of the question, What is the real seat of neuralgia—in the nerves or in the centres? Obviously, this is no easy question to answer. According to the law of eccentric phenomena, every sensation of which we are conscious is referred to the peripheral termination of the sensitive fibres (so Romberg writes). Bowman and Todd add that the sensation is referred to those parts, and to those only, to which the fibres irritated are distributed. According to this view, then, all appreciation of sensations as referred to any point in the course of the nerve is out of the question. An irritation, wherever set up, must be felt at the peripheral extremity of the fibres implicated, and never in any part of their intermediate course. But there are facts which are strongly opposed to this exclusive dogma, and which seem to prove that a sensation may be referred to various points in the course of the nerve-fibre. If we hit our funny-bone, although no doubt pain and tingling are felt at the peripheral distribution in the fingers, yet the chief agony is in the trunk of the ulnar nerve at the part struck, and certainly not merely in the skin covering it. The circumstance dwelt on by M. Valleix, that the specially painful points in nerves affected with neuralgia are always those where the nerve becomes superficial, is also a proof of a sensation being referred to other points besides the terminal. The same may be said of the pains which patients describe as shooting down along the track of a nerve, as the sciatic. These certainly are not located merely in the skin which covers in the nervous trunk.

"From these considerations, I am led to admit the possibility of very numerous exceptions to the law of eccentric phenomena, and to believe that pain in a nerve may really indicate by its situation the seat of the irritation or other morbid action. This is a conclusion of some importance to the local treatment of neuralgia. It justifies our empirical habit of applying sedative remedies as near as possible to the seat of pain. But of course we cannot affirm, in any case of pain involving the trunk of a nerve, that the morbid action may not be central; the law of eccentric phenomena holds true so far as that central dis-

order may certainly give rise to peripheral sensation. The only means of certainly distinguishing the site of the pain-causing action is division of the affected nerve. If this arrests the neuralgia, we know the disorder is seated peripherally; if it fails to do so, we know we have to seek more centrally. In a large number of cases, I fear it must remain problematical as to where the real seat of the disorder is. If—the pain being specially referred to some intermediate spot—injection of opium at that part (subcutaneous) should give more relief decidedly than the same dose at a distance, it would afford ground for believing that the cause of the neuralgia was localized in that spot. In the ordinary way of rubbing sedative liniments on the cutaneous surface over the seat of pain, we have no means whatever of proving a local action upon the suffering nerve, but rather the reverse. For take the case of the sciatic nerve, where pain is acutely felt at the back of the thigh, and notably between the ischiatic tuberosity and the great trochanter; if this is relieved by a sedative application to the covering cutaneous surface, we are sure that the chief action of the remedy must be on cutaneous ramifications of the gluteal, lesser sciatic nerves, and branches of the external cutaneous and other nerves on the front of the leg. These will convey impressions to the spinal centre, not far from the part where the roots of the sciatic are implanted; so that if the neuralgia were of central origin, it is very conceivable that the morbid action might in this way be beneficially modified. But, considering the depth at which the sciatic nerve lies from the surface, it seems quite impossible that the acetate, chloroform, &c., should penetrate so far through skin, fat, and fascia, or even muscles. There exists some evidence to show that any strong impression made on the centre (such as cauterizing the ear, galvanizing the columna nasi) through incident nerves may put a stop to some neuralgia.

"The relations of neuralgia are of course very different according to the cause which gives rise to it. If, however, we take the commonest kind—which arises from cold, malaria, debility—we must allow that it manifest a very close affinity with non-febrile rheumatism. Rheumatic and neuralgic pains are frequently so very similar, that they are only to be distinguished by the action of remedies. Iodide of potassium cures the rheumatic, quinine and iron the neuralgic; while often it occurs that in the same case, after having begun with the former, we have to resort to the latter to complete a cure. The beneficial action, noticed by several recent observers, of muriate of ammonia in neuralgia, can scarcely be dissociated from its remarkable and positive remedial action in muscular rheumatism. The interesting but obscure phenomenon of rheumatic paralysis is closely similar to, if not identical with, the paralysis or paresis of motor nerves which so often forms a part of neuralgia. Catarrh is allied to neuralgia by the similarity of its causes, the manifest implication (sometimes to a grave extent) of the cerebro-spinal nervous system, the resemblance of its inflammatory actions to those sometimes accompanying and depending on neuralgia, and in a large number of cases by its 'juxta.' If exhaustion aggravates a neuralgia, so does it also a catarrhal flux; while rest and toning means have an opposite effect. The affinity between neuralgia and *ague* in malarious cases is strikingly apparent; the two disorders so evidently replace each other, that there can be little doubt that the difference is only one of situation: the sensory nerves being affected in one case, the sympathetic system in the other. The therapeutic effects of arsenic and of quinine in *ague* and in common neuralgia, *rapprochent* the two disorders not a little."

(B) CONCERNING THE RESPIRATORY SYSTEM.

ART. 28.—*On the Treatment of Pneumonia.* By Dr. BRANDES, of Copenhagen. (*Vierteljahr's Archiv*, T. xv., Nos. 3 and 4, 1859.)

The author endeavors to prove, by means of statistics, that the purely expectant treatment of pneumonia has by no means given, at all times and places, those favorable results which its advocates boast of. The indiscriminate use

of general bleeding, he believes, is just as injudicious as the exclusive adoption of the expectant plan.

In every epidemic, it is necessary to determine whether bloodletting is applicable or not to each particular case. Venesection is generally to be avoided in cases where the blood is in an anæmic or dissolute condition, as for instance in drunkards. In the General Hospital, at Copenhagen, the acetate of lead is frequently used in such cases. Professor Christensen praises this remedy very highly, and had ample opportunity of testing its value, as cases of pneumonia in debilitated individuals are of common occurrence in the hospital referred to. Professor Christensen believes the acetate of lead to be one of the most efficacious means in the treatment of pneumonia, and prescribes it generally in combination with quinine, one grain of each every two hours. If the cough is very violent, opium is added instead of the quinine. Dr. Brunson has used acetate of lead, especially in the treatment of pneumonia in very young children, and has been very successful with it. Dr. Brandes, who tried the remedy in doses of half a grain in children of one to eight years of age, has obtained results equally favorable, and he extols particularly its calming properties in this disease.

ART. 29.—On the Causes of the Mutual Independence of Bronchitis and Pneumonia. By Dr. ROBIN.

(*Gaz. Méd. de Paris*, No. 2, 1859; and *Medical Times and Gazette*, Oct. 22, 1859.)

From the faulty notions which prevail as to the elementary structure of the organ of respiration, the causes of the mutual independence of bronchitis and pneumonia do not appear to have been recognized. It is customary to represent the tissue of the lungs as a mere continuation or expansion of the bronchi, which is as incorrect as it would be to represent the uriniferous tubes of the kidney as a continuation of the urethra, bladder, and ureter. As long as he believed in this doctrine, M. Robin never could comprehend why bronchitis should not constantly be passing into pneumonia. Nothing, however, can be more distinct than the pathological anatomy and symptoms of the two affections, which may be sometimes observed co-existing, but never passing from the one into the other.

The difference between the two diseases, marked as they are, must remain incomprehensible to those who consider the entire tube as lined with an uninterrupted mucous membrane from the larynx to the extreme subdivisions into *cul-de-sacs*. The real state of things is, however, as follows: Having passed through a certain number of subdivisions, the bronchi, now no more than one or two millimetres in diameter, lose their portions of the cartilaginous rings, and have no longer transverse muscular fibres, elastic longitudinal fibres, or a mucous membrane separable from the bronchial wall, properly so called. They no longer possess a prismatic epithelium with vibratile cilia—losing, in fact, all the characters of bronchi. The pulmonary or respiratory canalicules, erroneously termed ultimate bronchial ramifications, continue to subdivide and terminate in rounded or ovoid *cul-de-sacs* (improperly called bronchial or pulmonary cells), which at the period of birth are from five to eight-hundredths of a millimetre large, and in the adult attain the size of one or two-tenths. These canals have not the structure of the bronchi, but are characteristic of the pulmonary parenchyma. They are surrounded by intimately interlaced bundles of elastic fibres, mingled with fibres of the laminated tissue, formed of fibro-plastic elements, and of vessels. These vessels form on the interior of the canalicules (which presents slightly projecting folds), a network differing from that of the bronchi. The network consists of large capillaries, which nearly touch each other, so as to leave intervals smaller than the capillaries themselves. It is distributed on the very tissue of the walls of the pulmonary canalicules (there being no mucous membrane separable from the elastic parenchyma), and is only separated from the cavity of these conduits by a layer of pavement epithelium with large nuclei, which commences where the cylindrical epithelium of the bronchi ceases. Thus the pulmonary canals, in which hæmatosis is accomplished, have a different structure to that of the bronchi which convey the air

necessary for respiration. It is not possible to detach a mucous membrane distinct from the pulmonary parenchyma and the laminated tissue, in which, or on the surface of which, the capillary network is distributed, as is the case in the bronchi still provided with cartilages. In this way we may explain the rapid absorption which takes place in the lung, as compared with the slower absorbing power of the organs provided with mucous membranes—as also the easier rupture of these capillaries, with discharge of blood, or of substances injected by the air-passages. There is, in fact, as great a difference in texture between the bronchi and the pulmonary parenchyma, as between that of the excretory duct of a gland, and of the gland itself.

It will therefore be seen that affections seated in two portions of the apparatus so different, may well present great distinctions in their course, &c. But a still more important cause also explains the rarity of the extension of inflammation from the bronchi to the pulmonary tissue. Thus, in the case of bronchitis, the portion of the capillary system which is the seat of inflammation belongs to the general capillary system, properly so called, and receives its blood from the aortic or red-blood system; but in the case of pneumonia, the capillaries of the lesser circulation, deriving their supply from the black blood of the pulmonary artery, are in question. It is at the expense of this black blood that the morbid products of pneumonia are formed, as in hepatitis it is at the expense of the black blood of the vena porta that abscess of the liver is produced. We know, in fact, that although the pulmonary artery accompanies the bronchi throughout their entire extent, it gives no branch to them, nor to the interlobular partitions, and that it does not anastomose with the bronchial arteries. The latter entirely cease at the points where, or at a little beyond where, the small cartilaginous nuclei disappear from the bronchi, i. e. where the bronchial canalicules are only one millimetre, or a little more, in diameter. This is the exact spot where the capillary distribution of the venous artery begins to take place between the contiguous walls of the pulmonary canalicules, forming on their sub-epithelial surface a network of quite a special type of mesh-work, which is also found in the lesser circulation of all classes of vertebrate animals, even to the branchial plates of fishes. Beyond the bronchi, the bronchial arteries only furnish *vasa nervorum*, and branches to the interlobular laminated tissue, which extend as far as the pleura.

These circumstances supply not only an answer to the question proposed in this article; but also explain some of the differences which distinguish the nature and progress of inflammation of the lungs from that of other parenchymatous organs. It explains also the differences of pneumonia, according to age, differences not exhibited so decidedly in the inflammations of any other organ, and which arise, not only because the parenchyma and the respiratory canalicules undergo notable modifications, but also because modifications in its nature and course are produced upon the inflammation by the nature of the circulation. These are nowhere so decided as in the lesser circulation, which unites, anatomically and physiologically, the two sides of the heart, although its disturbances are often only caused indirectly, in consequence of lesions of the left side of the heart, instead of directly by changes on the right side.

Independently of the special type of distribution presented by the pulmonary capillaries, differing from that of the bronchial, their structure also differs in some points from that of the general capillaries. They are, in fact, amongst the largest of the body, and their parietes present smaller, more numerous, and more approximated nuclei than those of the other capillaries. It is, however, to be observed that the capillaries of the portal system in the liver present the same peculiarities of structure. These facts are not without their value, when we call to mind that inflammation is a disturbance of the capillary circulation.

ART. 30.—Acute Miliary Tuberculosis running its course in thirty hours.

By Dr. C. A. WUNDERLICH.

(*Archiv für Phys. Heilk.*, Jahr. 8, 1839, No. 2, and *Med.-Chir. Review*, July, 1839.)

Dr. Wunderlich relates this case as an instance of what he regards as very acute miliary tubercle, its commencement and termination occurring in thirty

hours, though he admits that it may also be interpreted as a case of acute tuberculosis which remained latent until shortly before death:—

CASE.—A type-founder, æt. 20, living in easy circumstances, had almost invariably enjoyed good health, never having shown symptoms of lead poisoning. At Christmas he had been poorly for a few days, and on the 6th of February, of the present year, he was also slightly indisposed, but was perfectly well afterwards. On the 11th of February he went to work as usual, and ate his dinner with a good appetite. After dinner he vomited once, but was able to do his work. At five P. M. he complained of vertigo, and on going to the water-closet became comatose. He was brought to the Leipzig Hospital in this state, was undressed with difficulty, and when put to bed lay on his right side doubled up; opened his eyes at times when spoken to, but did not answer questions. His face had the usual color; the pupils acted well; there was a moderate blue line round the teeth. The front surface of the chest could not be examined. There was no dulness posteriorly. Respiration was vesicular throughout, except at the left scapula, where it was slightly bronchial. Respirations, twenty; pulse, ninety-two; heart-sounds, normal. Nothing abnormal about the abdomen. General nutrition good. Insensibility persistent. Constant jnetitations increased every half hour paroxysmally, but without spasms or screaming. On the following morning the face was purplish, and the patient swallowed nothing. After a warm bath, with cold applications to the head at mid-day, he was attacked with universal convulsions, alternating with tetanic extension; the face became cyanotic; there was froth at the mouth. After an hour and a half's interval the attack was renewed; then after half an hour, and subsequently, they returned every five minutes. The pupils now became contracted; coarse and fine mucous râles were audible over the lungs; respiration became irregular; the tracheal rattle supervened, and the convulsive paroxysms increasing in frequency, he succumbed to one at one A. M. the next night. *Post-mortem*: Cranium and dura mater normal; the meninges normal throughout, except that at the left posterior lobe there were a few small opaque spots, with two distinctly projecting, translucent, grayish, miliary tubercles. The left posterior lobe of the cerebrum was softer than the remainder of brain, but without extravasation or congestion; ventricles not enlarged, without serum; the septum pellucidum and fornix softened; the remainder of the brain healthy. Both pleura adherent. The right apex showed cicatricial contractions, and besides small, almost cylindrical, bronchial dilations and old tubercular granulations, a large number of fresh, rose-like, prominent miliary tubercles. In some parts these were densely aggregated, but there were large interspaces between the groups; these also extended into the middle and inferior lobe. In the left lobe the deposit was confined to the upper lobe. Heart, spleen, liver, peritoneum, and kidneys, were normal: in the lowest part of the small intestine the solitary glands and Peyer's patches were somewhat enlarged; in the stomach were some hemorrhagic erosions.

ART. 31.—On the Endemic Phthisis of soldiers. By Dr. THOLOZAN.

(Gaz. Méd. de Paris, No. 23, 24, and 27, 1859.)

The great increase of deaths among soldiers in times of peace appears to be owing especially to pulmonary diseases of a peculiar character. These diseases are the result of a depraved state of constitution, brought on by crowding and other evils of life in barracks. The endemic phthisis of soldiers, indeed, arises under the same circumstances as the various eruptive fevers—smallpox, measles, scarlet fever, typhoid or typhus fever, and the rest; and the means which are required to check the development of the fevers, will also check the development of the pulmonary lesion.

According to this view, it is necessary, for the future, to look upon the phthisis of soldiers as more akin to specific maladies of an infectious character than to ordinary phthisis. Dr. Tholozan's views, which are founded upon careful and extended inquiries, deserve every attention on the part of those who have the charge of the health of our own army and navy.

ART. 32.—*The saturnine treatment of Phthisis.* By Dr. BEAU.

(Gaz. des Hôpitaux, No. 58, 1859.)

In a clinical lecture, Dr. Beau informs us that he was led to try this mode of treatment by two reasons, one practical and the other theoretical. The practical reason is derived from the real or supposed immunity of workers in lead from phthisical affections. The theoretical reason is not easy to seize. It is apparently this: that anæmia is an effect of saturnine as well as paludine intoxication, and that intermittent fevers (which are the effect of the latter intoxication), are more or less incompatible with consumption. Dr. Beau has tried this plan of treatment in five cases, and in four of these he tells us that the cough and expectoration were greatly relieved. The carbonate is preferred, as, from its insolubility, being less likely to derange the stomach. Pills of ten centigrammes, in numbers gradually increasing from one to eight in the course of the day, are given until signs of lead-poisoning begin to show themselves. In the first of the five cases mentioned, these signs made their appearance in about a month—the time is not given in the other four.

ART. 33.—*On the Action of Common Salt upon Phthisis.* By Dr. COTTON, Physician to the Hospital for Consumption, at Brompton.

(Medical Times and Gazette, May 28, 1859.)

This substance was administered to twenty-five patients, thirteen of whom were males, and twelve females; their respective ages varying from sixteen to thirty-eight, the majority being about midway between these two numbers. In seven cases the disease was either in the first stage, or the very commencement of the second; but in the rest there was distinct evidence either of tubercular softening or actual vomica. Copious and accurate notes of the cases in which salt was given were made by Dr. Maxwell, the resident Clinical Assistant at the Hospital.

The salt was dissolved in water, and given in doses varying from one to three drachms, two or three times a day, the smaller quantity generally being prescribed at first, and gradually increased; a little compound tincture of lavender was added merely to disguise it. According to its effects, it was continued for a period varying, in the different cases, from two to eight weeks. It was found that one drachm could generally be taken without nausea; but in a few instances two drachms produced some degree of sickness, and three drachms caused vomiting, although, as a general rule, and in the majority of cases, these larger doses did not seem to disagree with the stomach. In two patients one drachm frequently gave rise to nausea, if taken upon an empty stomach, while two or even three drachms could be taken with impunity by the same persons soon after meals.

In fifteen cases the appetite either remained good, or became so during its administration; and in seven the appetite was either bad at first, or was lost under its use. In eight of these fifteen cases the increase of appetite was fairly attributable to the chloride; but in four out of the seven the salt was as fairly chargeable with its loss: thus showing the different effect of the chloride upon different individuals. In only three cases was thirst complained of, and this was generally remedied by freely diluting the solution.

Fourteen patients visibly improved while the salt was being taken—such improvement consisting principally in the increase of strength and appetite, and the diminution of cough and other general symptoms; eight patients as visibly became worse in their general condition; and three seemed to remain in every respect unchanged.

In four instances there was a manifest improvement in the physical signs; in six the pulmonary or local mischief as manifestly increased; and in fifteen there was no evidence of much change either one way or the other. It was singular that by far the greater number of cases of improvement, either in general symptoms or physical signs, occurred in the male sex.

Thirteen of the patients increased in weight—the minimum increase being

one pound, and the maximum six pounds; six lost weight—the greatest loss being three pounds, and the least one pound; and in six the weight remained as nearly as possible stationary.

A large amount of chlorides was always found in the urine of those who were taking the salt; but so little in comparison with the quantity administered, that much must have either passed off by the bowels or remained in the system. No unusual amount of diarrhoea, however, attended its use. The search after chlorides led to the discovery that the urine of all phthisical patients, even of those in the last stage of the disease, contains such compounds in considerable quantity.

The remarkable circumstances, so often noticed in the treatment of phthisis, that while the general health and condition are apparently improving, the local disease is nevertheless advancing, presented itself in two well-marked instances.

In estimating the effect of remedies, particularly in hospitals—and in none more so than in that at Brompton—it is necessary to make proper allowance for the influence of concomitant circumstances. Improved diet, rest, hygiene, and hope, have a wondrous effect upon every kind of disease; but after carefully weighing the probable action of such agencies, Dr. Cotton has arrived at the following conclusions, viz.:—

1. Chloride of sodium in some cases increases the appetite, and acts as a general tonic.

2. In doses of one or two drachms gradually administered, it seldom produces either nausea or derangement of the digestive organs, or occasions any considerable degree of thirst.

3. Its tonic influence in phthisis may fairly rank with many other tonics, such as bitters.

4. It does not appear either that chloride of sodium is a substance deficient in the tuberculous crisis, or that it has any direct effect upon phthisis when fully developed.

ART. 34.—On the prevention of Consumption by the use of Hypophosphites.

By Dr. J. FRANCIS CHURCHILL.

(Pamphlet, Churchill, 1859.)

According to Dr. Churchill, the want or undue waste of "oxidizable phosphorus" in the animal economy is one at least of the essential conditions of phthisis, and the real remedy is to supply this waste or want by hypophosphites. "My anxiety," says the author, "is that the hypophosphites should be brought, as speedily as possible, into universal use, as I know that they will prove as sure a remedy in consumption as quinine is in intermittent fever, and as effectual a preservative as vaccination in smallpox." This is very strong language, but it is used advisedly.

"This assertion no longer rests solely upon the thirty-four cases with which my discovery was ushered into the world in July, 1857. I can now appeal to the results of upwards of one hundred and fifty detailed observations of the disease collected during the past year, at my public dispensary, rue Larrey, Paris, where any member of the medical profession, who has wished to take the trouble, has had full liberty to examine, without reserve, both my patients and the records of their cases. To these might be added almost an equal number treated in my private practice. In no single instance have I found the remedy to fail in its effect, or indeed not to produce even more benefit than could have been at first expected from it, if the degree of injury already sustained by the lungs, previous to the use of the treatment, be taken into account.

"Similar results have, since the publication of my discovery, been announced by Professors Parigot, of Brussels, and Maestro de San Juan, of Granada, in Spain, also by Drs. Jacinto Le Riverend, and Galvez, of Havana, and Reinwillers, of Paris. It is true that by other practitioners, in still greater numbers, the remedy has been declared useless or even dangerous; but, in every instance in which more than a bare assertion has been published, it would be easy for me to show that not only have these latter observers neglected to fol-

low the rules I have stated to be necessary to ensure success, but have in fact violated the most elementary principles of scientific research. I will mention but one instance.

"In February of last year, after a trial in London, at the Brompton Hospital for Consumption, the hypophosphites were declared to be utterly useless, upon the following grounds:—

"The remedy was used for *one fortnight* in twenty cases, of which *eight* are admitted to have improved during that period. It is *assumed*, however, that this improvement was owing to change of diet and regimen, because, after leaving off the hypophosphites, the patients, it is said, were found to improve more rapidly under the use of cod-liver oil and tonics than they had done before. Now, it will strike every one that the trial of a remedy for consumption during *one fortnight only* looks very much like a sham, and the suspicion is confirmed by the haste with which the experiment was left off, not only in the cases which were stated not to be mending, but also in those which were allowed to have improved. As if farther to perplex the matter, no time was allowed for the effects of the hypophosphites upon the system to work off, but cod-liver oil was administered without any interval, and for it alone is claimed the continuance of the improvement which is stated to have been observed. We are not told, however, how long this improvement was kept up after the discontinuance of the hypophosphites, and the same discreet silence has, to this day, been observed with regard to the ultimate issue of almost all the cases. All we are told is that: Two of the patients ultimately died, while another, it is confessed, felt so much better, after the use of the hypophosphites *alone*, that he refused to take anything else, and rather than do so, left the hospital. Upon such facts as these, I feel that all comment would be superfluous.

"I do not hesitate to assert that every refutation of my views which has yet appeared, rests upon no better foundation than the preceding."

The effects of the hypophosphites as a prophylactic are not less encouraging: thus, if "the patient takes daily about ten grains of the hypophosphite of lime or of the hypophosphite of soda, he will usually find all the symptoms disappear in a period varying from a few days to a month, and, by continuing the occasional use of the remedy, he will speedily find himself in the enjoyment of such health as he perhaps had never known in his life before.

"Ten grains daily will be the *safest* dose for an adult male, though sometimes double that quantity must be given to produce the proper effect.

"For females, particularly if nervous and delicate, and for children, the dose must usually be much smaller. The younger and the more sensitive the patient, the more easily is he influenced by the remedy. The dose should therefore be decreased in a higher ratio than the age of the subject. For the *prophylactic* treatment of infants, it will be advisable seldom to exceed *one-fifth* of a grain every second or third day.

"After the remedy has been used for about a week or ten days, it should usually be omitted for three or four days together, and then resumed, to be again left off after the lapse of another period like the first. It should be thus continued from time to time as long as it may appear necessary; remembering, as the patient improves, to increase the intervals during which the remedy is omitted. It should be left off immediately if the subject experience any feeling of fullness of blood with a determination towards the head, any sensation of giddiness or ringing in the ears, and especially if there be any bleeding of the nose, however slight.

"The hypophosphites (except in some few cases) should not be used during the acute stage of any inflammatory disease of the lungs, whether primitive or supervening upon phthisis.

"These directions will be found sufficient in the great majority of instances, but it would be impossible for me to go into the details necessary for the treatment of different temperaments and constitutions, without trespassing upon your indulgence to a much greater extent than might be found convenient. I wish, however, before I conclude, to describe the manner of preparing the salts in a pure state, as the greater quantity of what is sold under the name of hypophosphites is not only useless, but often positively injurious. One means of

avoiding this difficulty would, no doubt, be for me to provide or to recommend some one particular sample. I have already given my reasons for not doing so. As, however, the use of the pure salts is absolutely indispensable, the following details will prove of service.

"A tin vessel, large enough to hold from two to four gallons, and about twice as deep as it is wide, should be half filled with a moderately thick lye, formed by dissolving pure quick lime obtained from white marble. To this must be added four or five sticks of phosphorus, and the whole kept boiling gently for about twelve hours. Care must be taken to restore the water which evaporates, and to keep up the supply of phosphorus whenever it appears to be deficient, which will be known by the liquid ceasing to evolve phosphuretted hydrogen. The quantity of phosphorus consumed will depend upon the size and form of the vessel, the rate of boiling, &c. At the end of twelve hours, or sometimes sooner, the liquid is allowed to cool and then filtered clear. A current of carbonic acid gas is afterwards passed through it until at least a large portion, or better still, the whole of the precipitate which at first forms, is redissolved. The liquid is then boiled a second time to expel the excess of carbonic acid, and, after cooling, again filtered clear. Lastly, it is evaporated to dryness in a water-bath, or simply boiled until a film begins to form, when it is set aside to crystallize. The salt thus prepared contains the pure hypophosphite of lime, with perhaps a slight trace of the phosphate and carbonate, which are not injurious, while it is rid of all excess of free lime, which is highly so.

"The soda-salt is formed by adding carbonate of soda to a solution of hypophosphite of lime, *taking care to employ an excess of the latter*. The presence of even a small quantity of carbonate of soda will be found to modify materially the therapeutical effect of the hypophosphite. Any sample in which there is a mixture of carbonate should therefore be rejected.

"The above mode of preparation is not the cheapest nor the most scientific, but it is the easiest, and the best adapted for general use.

"Either the lime or the soda-salt may be used, though in certain individual cases, which I cannot now stop to explain, a preference should be given sometimes to the one and sometimes to the other.

"The salt selected should be taken either dissolved in half a tumblerful of milk, or in an equal quantity of water, which may be sweetened to taste.

"The best time for administering it is at breakfast, *along with the food*. In this state of dilution, the pure hypophosphites are, if anything, even less tasteless than an equal quantity of common salt.

"No other drug or medicine should be used at the same time, unless to fulfil some special indication and by the express order of the physician.

"The salts of lime and soda are the only preparations which I would recommend for use, as preservatives, though sometimes, in the curative treatment, those of potash, ammonia, iron, and quinine, may be employed with advantage.

"Lastly, as a general caution, I may add that if the hypophosphites have been taken for two or three weeks in sufficiently large doses without producing any improvement in the patient's appetite, strength, or general appearance, this will, upon due investigation, be found invariably to depend upon one of the causes I have already pointed out."

ART. 35.—*Case of pulsating Empyema.*

By Dr. HEYFELDER, of St. Petersburg.

(*Osterrussch. Zeitschrift*, No. 48, 1858, *Gaz. Hebdom.*, July 22, 1859.)

The pulsation in this case, which is one of encysted empyema following upon subacute pleurisy, may have been derived either from the heart itself or from the ascending aorta.

CASE.—A druggist, *et* 46, after suffering for two months from symptoms indicative of subacute pleurisy, noticed a small, resisting, pulsating tumor in the second right intercostal space, close to the sternum. At times this tumor became much more prominent, and at times it disappeared almost altogether. The pulsations were synchronous with the pulse. Many medical men declared the tumor to be aneurismal. Dr. Heyfelder saw the patient in June, 1857, and

found him pale, emaciated, and with his breathings quick and oppressed. The tumor had considerably increased in size, and at one point it appeared to be on the eve of bursting. It became distinctly more prominent during expiration, and particularly during coughing. Over its surface, and for some distance around, the sound on percussion was dull. No souffle could be detected on auscultation. Fluctuation was very distinct. The tumor, moreover, could be emptied by pressure, and when this was done there was a corresponding bulging in the intercostal spaces near at hand. Dr. Heyfelder, diagnosing empyema, introduced a tenotomy knife, and evacuated about eight ounces of pus, with the effect of relieving the respiration, and diminishing the size and pulsatory character of the tumor. After this, matter collected again, and the abscess opened spontaneously, and remained open for some time, discharging freely all the time. In the end, the discharge ceased, a depressed cicatrix occupied the place of the tumor, and the only relics of the previous mischief were, a slight degree of dulness and a somewhat feeble respiratory sound in the part.

ART. 36.—On the treatment of Empyema by Drainage. By Dr. GOODFELLOW, Physician to the Middlesex Hospital; and Mr. CAMPBELL DE MORGAN, Surgeon to the Middlesex Hospital.

(*Proceedings of Royal Medical and Chir. Soc., June 14, 1859.*)

The object of this communication was to show the advantage to be derived in many, if not in all, cases of empyema, from making two openings in the operation of paracentesis thoracis, and establishing a free communication between them and between the cavity of the pleura and the external air, by means of an India-rubber tube, perforated at frequent intervals in the way recommended by Chassaignac for the healing of sinuses. The marked success attending the adoption of this plan of treatment in the two cases read to the society seemed to afford strong evidence of its value.

The first case was that of a boy, aged seventeen years, who had been suffering for upwards of five years from an opening in the right side of the chest, which communicated directly with the pleural cavity, and, for a great part of this period, opened into a cavity in the lung, the result of an abscess. The history of the case, as described in the paper, showed that at the age of twelve years this boy had an attack of pneumonia after measles, which terminated in abscess; that in a short time this abscess burst into the cavity of the pleura; and that ultimately a spontaneous opening occurred in the chest-wall, through which a great quantity of pus, of a very offensive character, continued to be discharged for the five years preceding the adoption of the operation above recommended. During the whole of this period the boy had been for the most part confined to bed: and notwithstanding the treatment that had been adopted at home and in a public hospital, but little improvement took place in his general health, and no progress whatever was made towards healing the disease in the chest. The counter-opening was made, and Chassaignac's tube inserted on the 5th of January last. In a few days a marked change for the better was observed; the discharge from the opening, instead of being thin, unhealthy, and intolerably stinking, was thick, much reduced in quantity, and nearly free from odor; his general health rapidly improved; the oedema of the legs, with which he had been affected for some years, quickly diminished; and he was able to sit up for several hours every day. In three months after the operation he was dismissed from the hospital. He was then able to walk a considerable distance without difficulty, and has since been doing well.

The next case was that of a man, aged twenty-four years, who for nearly three years had suffered from tubercular disease of the left lung, followed by pneumothorax and empyema. There was every reason to believe that the empyema had been present for more than a year, and that a considerable quantity of fluid was in the pleural cavity. The greatest impulse of the heart was felt about two inches below and an inch to the external aspect of the right nipple. The first opening was made by Mr. De Morgan, on the 21st of January, between the fifth and sixth ribs; and the sero-purulent matter was allowed to drain away gradually by partly plugging the canula. In twenty-four hours upwards

of eight quarts had escaped, the opening still freely discharging. Four days after, a second opening was made, and the perforated tube introduced. But it was found, after about ten days, that the counter-opening had not been made sufficiently low down in the chest cavity, for the pus remained so long as to become decomposed. A second counter-opening was made as low down as possible; after which the discharge soon lost its offensive odor, quickly diminished in quantity, and the general health so rapidly improved that he was able to get up in a few days; and on the 5th of April, he was able to return to his home. Since his discharge, he has continued to improve in health and strength, and is now (June 16th) able to perform a day's work at an easy occupation.

The benefit to be derived from the plan of "drainage," by means of Chassaignac's tube, is obvious. The openings in the chest-wall are always free; the matter is discharged drop by drop as it forms, so that if the tube be suitably placed, there is never any collection whatever of pus in the thorax; no time is given for decomposition; and the pus is, therefore, discharged in a healthy and pure state. The evils arising where only one opening has been made need not be pointed out. They are sufficiently manifest in the two cases described in the paper.

The operation is a very simple one. A puncture with a trocar, or a simple incision, may be made into the cavity of the chest at the usual place—between the fifth and sixth, or sixth and seventh ribs—or indeed in any convenient situation. A firm, long, iron probe, somewhat bent, is then passed through the opening, and directed towards the lower and back part of the cavity—the lower the better. If the end of the probe be made to press against the sides of the thoracic walls, it can be felt from the outside through the intercostal spaces, though, perhaps, obscurely, owing to the thickness and toughness of the false membrane within. The lowest and most appropriate site in which the probe can be felt having been selected, an incision is made upon the end of the probe, which is then brought through the opening thus made. A strong piece of silk thread is passed into the eye of the probe, and drawn through the two openings; and the drainage-tube, being firmly tied to one end, is then drawn through by means of the silk; the ends of the tube are tied together, and the operation is completed.

The plan of treatment by "drainage," first adopted by Chassaignac, has been largely and beneficially put in practice at the Middlesex Hospital in deep-seated and extensive collections of matter. The operation consists in passing through the abscess a fine India-rubber tube, perforated at small intervals; the ends of the tube, which project from the opposite sides of the abscess, are then tied together, and the matter is allowed to drain away, and to discharge itself through the perforations made in the tube.

ART. 37.—On some of the effects of primary Cancerous Tumor within the Chest.
By Dr. BUDD, Physician to King's College Hospital.

(*Proceedings of the Royal Med. and Chir. Society, May 24, 1869.*)

The object of this paper is to call attention to the changes that are produced in the nutrition of the lung by a primary cancerous tumor involving its root. Primary cancer within the chest usually forms a single, compact, nodular mass, commonly occupying the mediastinum, and invading, to a greater or less extent, one of the lungs—in the great majority of instances, the right, the other lung remaining uninfected.

The author gives the details of three cases of this kind that have fallen under his observation in King's College Hospital, in all of which the tumor involved the root of the right lung. In all these cases, remarkable changes of inflammatory origin were found in the chest. These changes consisted, in the order of their frequency, of—

1. Firm adhesion of the lung to the walls of the chest by thickened pleura.
2. Inflammatory condensation of the lung, where it was not invaded by the cancer, proceeding, in all of the cases, to more or less disorganization of the pulmonary tissue, and the formation of pockets of pus.
3. In one of the cases—the case in which the tumor had attained the great-

est size and spread furthest towards the left side—adhesion of the the pericardium, and an abundant effusion of lymph on its outer surface.

The extent of change in the lung in the different cases was greater as the tumor was larger, and involved more completely the root of the lung; and in all the cases the left lung was free from adhesions, and presented no other changes than those which result from recent congestion. The question is then discussed, how these changes of inflammatory origin were caused; and from a review of the circumstances of the cases, the author considers it most probable that they resulted from the tumor involving and destroying all or great part of the pulmonary nerves, and that consequently the inflammatory diseases of all the tissues of the lung in these cases is analogous to the destructive inflammation of the eyeball that results from division of the fifth nerve within the skull. It is remarked that the lung resembles the eyeball in this: that all the nerves which supply it are comprised at its root in a very small space, so that they can there be destroyed or paralyzed—and the organ, in consequence, be deprived of all nervous influence—by disease of no very great extent.

Primary cancer involving the root of the lung is a rare disease. The three cases related above are the only instances of the kind that have fallen under the author's observation in King's College Hospital since it was first opened for the reception of patients in 1840. The disease is, however, so peculiar in its effects that—as was shown by Dr. Stokes, in an admirable paper on this subject published in the 'Dublin Journal of Medical Science' for 1842—a diagnosis of it may sometimes be made with much confidence. The elements of diagnosis consist—

1st. In the signs that give evidence of the existence of a tumor.

2dly. In the absence of strong pulsation and of the morbid bruits that usually attend aneurismal tumors.

3dly. In the occurrence of hæmoptysis and other signs, showing that the lung is involved in the disease.

4thly. In a distended and varicose condition of the superficial veins of the chest.

A cancerous tumor usually affects the venous circulation and the nutrition of the lung more than an aneurismal tumor of the same size, because it grows into and blocks up the veins, and converts into cancer the other tissues which it embraces in its growth.

ART. 38.—*On destructive changes in the Lung from interference with the Pneumogastric Nerves and Pulmonary Plexus.* By Dr. GILL, Physician to Guy's Hospital, &c.

(Guy's Hospital Reports, 3d series, vol. v., 1859.)

After division of the trunks of both pneumogastric nerves the lungs undergo destructive changes; but if only *one* nerve be divided, the damage to the lung is not so certain—a fact which depends upon the communication between the two vagi in the pulmonary plexus. The results, however, are different when the nerves and their plexus are injured by disease lower down at the root of the lung, because not only are there larger branches of the sympathetic at that part, injury of which would have an influence upon the morbid processes, but because the branches going to either lung may be individually implicated, and, consequently, the corresponding lung be directly deprived of its nervous supply. This is well seen in the following cases:—

CASE 1.—*Aneurism of the left side of the arch of the aorta pressing upon the left pneumogastric nerve and upper part of pulmonary plexus; sloughing pneumonia of the left lung.*

George R.—, *et.* 35, admitted into Guy's Hospital, under the care of my colleague Dr. Addison, March 25th, 1850, a sailor, and up to the age of 33 always enjoyed good health. At that time he had a sudden attack of paralysis of the right side, with loss of speech. He gradually recovered, but was never again able to read or write, both of which he did tolerably well before the seizure. His face was thin and haggard, expression anxious; body emaciated; voice

husky; respiration hurried, and impeded by laryngeal obstruction. Breathlessness. He complained that for a month he had had an uneasy tickling sensation in the throat, causing frequent cough. There was no pain on either side of the chest. Some difficulty in deglutition, more for fluids than for solids. Skin hot and sweating. Tongue furred. Pulse 100, small and feeble. The left side of the chest was dull, on percussion, throughout. No tactile vibration. No vesicular murmur. No bronchial sounds, except near the apex, where loud bronchial breathing was audible. Except this, the whole of the left side of the chest seemed impervious to air. The right lung appeared to be abnormally resonant. Respiration puerile. Mucous râles in larger tubes. Sputa rather abundant, muco-purulent. Under the cartilage of the second rib on the left side, a soft double (aneurismal) whiz was heard. The diagnosis was aneurism of the arch of the aorta, phthisical disease of the left lung, and pleurisy. He died exhausted on the 5th of April.

Post-mortem examination.—Right lung healthy. Left lung irregularly consolidated; the tissue gray. In the upper lobe, irregular cavities formed by the breaking up of the tissue, and communicating with the bronchial tubes. The tubes themselves were filled with muco-purulent secretion. Some effusion into the pleura. Heart healthy. At the arch of the aorta, on the left side, there was an aneurism of the size of a large orange, which had extended downwards and backwards, and compressed the left pneumogastric nerve and the adjacent branches of the pulmonary plexus. The posterior part of the sac was formed by the bodies of the first, second, and third dorsal vertebrae. The sac itself had not burst. In the fissure of Sylvius, on the left side, and covering some of the convolutions of the island of Reil, was a tough, yellowish substance, the remains of a large clot. The gray matter beneath was partially absorbed, and the yellow substance dipped down into the corpus striatum, in which there was a spot of softening.

In this case, as in the two others I have to relate, the physical diagnosis was obscured by the state of the bronchial tubes. When the nerves of the pulmonary plexus are injured, paralysis of the tubes follows, they gradually become filled with exudation, which they cannot expel, and hence are impervious to air. Besides this, as I shall have again to notice under the third case, the chest is flattened, probably from atelectasis of the pulmonary tissue, which comes on with the paralysis of the tubes. This and the dulness on percussion and absence of respiratory movement may lead to the diagnosis of chronic pleuritic effusion undergoing absorption, when on post-mortem examination it may be found, as in the above and following cases, that there is a very different state of things, namely, obstruction of the paralyzed tubes and chronic pneumonia.

CASE 2.—*Cancer of the œsophagus invading the trunk of the right pneumogastric nerve and the branches of the pulmonary plexus behind the right bronchus; enlarged bronchial glands; ulceration of right bronchus; pneumonic consolidation and commencing gangrene of right lung.*

James R.—, *et.* 45, admitted into Guy's Hospital, under my care, November 21st, 1854. For some weeks he had had difficult deglutition and pain under lower third of sternum, and at the ensiform cartilage. Emaciation. Cough. Peculiarly offensive muco-purulent expectoration, streaked with blood. Dulness, on percussion, from the lower angle of the scapula to the base of the lung on the right side. Absence of respiratory sounds at the seat of dulness, mucous crepitation and bronchophony above. Puerile respiration over left side. He died on the 29th.

Post-mortem examination.—At the commencement of the œsophagus there was epithelial cancer, ulceration extended down as low as the root of the lungs, but neither the lungs themselves nor the pleura were invaded. The areolar tissue around the œsophagus was infiltrated by the cancer, and especially on the right side, about the right bronchus. The right pneumogastric nerve was at this part of its course implicated in the disease, so that it could not be traced to its distribution. The right lung was extensively consolidated,

its lower lobe was infiltrated with a grayish or rather greenish acro-purulent fluid, having an offensive odor. The mucous membrane of the bronchi on this side was intensely congested. The tubes obstructed with muco-purulent secretion. The bronchial glands were enlarged by cancerous deposit in them. From one of these, lying on the right bronchus, the cancer had extended into the tissue of the tube.

Left lung healthy. Larynx healthy. Heart and other viscera healthy.*

Remarks.—It could not in this case be so unequivocally inferred, as in the preceding, that the destruction of the lung was alone due to disease of the nerves, for the cancerous affection had extended to the bronchial glands and also invaded the tissue of the bronchi. It may therefore be supposed that there was obstruction of the absorbents and of the bronchial veins, which would influence the result. Although in similar cases the possibility of such complications and their operation cannot be overlooked, there still remains the fact that the nerves were in this case invaded and destroyed, accompanied with those changes in the pulmonary tissue which would follow paralysis of the bronchial tube.

CASE 3.—*Fibrous thickening (malignant?) of the tissue in the mediastinum and around the right bronchus (but not narrowing or compressing it); implication of the right pneumogastric nerve and branches of pulmonary plexus; consolidation and purulent infiltration and sloughing of the pulmonary tissue; small bronchial tubes much dilated and full of muco-purulent secretion.*

Joseph J.—, *wt.* 61, admitted into Guy's Hospital, under my care, January 12th, 1859. He was much emaciated, and had a cachectic aspect. The report he gave of himself was that he had been ill for four months, and that his symptoms began with sharp pain in the right side, without cough. On examining the chest, the right side was found entirely dull on percussion, but the natural resonance of the sternum remained. The whole side was flattened, and the infra-clavicular space depressed. On auscultation, no respiratory murmur nor any bronchial sounds were audible at any part. There was no vocal resonance nor tactile vibration. He had never spat blood. The left side was resonant on percussion throughout. Bronchial râles in the larger tubes. Expectoration muco-purulent, without odor. The diagnosis was chronic pleurisy, with effusion undergoing absorption. Malignant disease was suspected, but no enlarged glands could be found in the axilla or neck, nor were there any symptoms of pressure on the parts in the mediastinum, causing difficult respiration or deglutition. He died on the 19th.

Post-mortem examination.—Old and universal adhesions of right pleura. Fibrous thickening and induration (malignant?) around the bronchus, not narrowing or compressing it, but implicating the trunk of the right pneumogastric nerve and the branches of the pulmonary plexus. The trunk of the nerve was so entirely confounded with the new tissue that it could not be traced through it. The smaller divisions of the bronchial tubes were universally dilated up to the periphery of the lung. They as well as the larger tubes were choked with muco-purulent secretion. The pulmonary tissue was consolidated into the state of gray and iron gray hepatization. In the lower part of the upper lobe was a large sloughing cavity, from the breaking up of the indurated tissue. The pleura pulmonalis was thickened to the extent of the eighth of an inch in parts. The left lung was healthy. The bronchi on this side were free. Heart and abdominal viscera healthy.

Remarks.—This case affords an excellent illustration of the effects which are referable to paralysis of the pulmonary plexus on one side—accumulation of muco-purulent secretion in the paralyzed bronchi, subsequent dilatation of the tubes at their peripheral distribution, concomitant exudation into the air-cells (hepatization), and at length disintegration of the tissue. It is also worthy of notice that the whole volume of the lung was diminished, as shown by the flattening of the chest and falling in of the infra-clavicular space. This might

* This case is recorded by Dr. Habershon, 'Observations on Diseases of the Alimentary Canal,' Case XX.

be partly referable to the contraction of pleuritic adhesions, but it is probable that it was chiefly caused by that atelectasis of the tissue which followed upon paralysis of the bronchi. The steps of this process have been made out on the lungs of animals after the division of both pneumogastrics. It seems that the capillaries of the lung, becoming congested, encroach upon the space of the air-cells, and produce an airless and dense state of the pulmonary tissue, with reduction of volume.

ART. 39.—*Curious case of Gangrene of the Lung, caused by the presence of a foreign body.* By Dr. E. J. FOUNTAIN, of Davenport, Iowa.

(*North American Medico-Chir. Rev.*, Sept., 1859.)

In this remarkable case, the gangrene of the lung led to empyema, and the empyema ended by opening into the colon through the diaphragm. The gangrene was caused by the head of the thigh-bone of a chicken slipping into the windpipe, and becoming lodged in the right bronchial tube. The end was satisfactory, for the foreign body was eventually expelled, and the patient recovered. Dr. Fountain discusses the propriety of tracheotomy, and very properly, we think, decides against the advisability of the operation in this particular case.

CASE.—"I was called on the 29th of November, 1858, to see the patient, Alexander Barrow, an interesting lad, at 10, whose health had been generally very good, though of a delicate constitution. I found him laboring under a severe cough, of a dry, hoarse, and resonant character, occurring in frequent paroxysms, and unattended with any expectoration. On placing the patient in an upright position, to remove his garments, for the purpose of examining his chest, symptoms of fainting appeared, requiring an immediate resort to the recumbent position. This induced me to remark that this difficulty must be of a serious character; but I could not as yet even guess at its nature. I proceeded carefully to examine his chest, the first result of which increased the mystery of his case. Everywhere over the left lung the respiratory murmur was clear and distinct, and entirely free from the slightest crepitation, or the least symptom of disorder. The upper lobe of the right lung appeared equally healthy; but in the middle and lower part there was an entire absence of all respiratory sounds. There was an appreciable degree of dullness over all this region, but more marked anteriorly, and pain was felt on percussion at a single point near the margin of the fourth rib, a little to the right of the sternum. I now inquired more particularly into the history of the cough, and learned that it had existed since he was suddenly taken with a violent paroxysm of coughing at the dinner-table, on the 19th of the same month, ten days before coming under my observation. This gave me a clue as to the nature of his difficulty, and I inquired very particularly concerning the circumstances relating to this occurrence. The patient stated that he had bitten off the round head of the thigh-bone of a chicken, and at the moment of doing this he became strangled by some crumbs of corn bread which he also had in his mouth at the same time; and with the first effort of coughing the bone was drawn into his throat. This was followed by a long and violent paroxysm of coughing. During the remainder of the day, it continued most of the time; and in the intervals his breathing was accompanied with a hoarse, croupy sound. The cough had continued unremittingly from that period, yet, very singularly, it had excited no suspicion in the minds of his parents of the probability or danger of the bone having entered the trachea. The suddenness of the attack, with the circumstances related, taken in connection with the symptoms revealed by auscultation, immediately impressed my mind with the belief that his cough was caused by the articulating head of the thigh-bone of a chicken lodged in the right bronchial tube immediately beyond the first branch which is given off to supply the upper lobe of the lung. On the day following, I examined his chest very carefully with the aid of Cammann's double stethoscope, the result of which more than confirmed the opinion which I had entertained the evening previous. As before, I found the left lung everywhere in a perfectly healthy and normal condition, but the respiration puerile. The respiratory

murmur was perfectly clear in the upper part of the right lung; but, on passing downward with the stethoscope, I found that all sounds suddenly ceased about the fourth rib. Above this line, the voice could be heard through the stethoscope as from a healthy lung; below, it was altogether wanting, the voice reaching the ear only from without. There was some degree of dulness also below this line; and at a point corresponding to the root of the lung there was pain on percussion. From these symptoms I concluded that some foreign body had lodged in the right bronchial tube, between its first and second bifurcation; and it was further evident to my mind that the substance must be something which was of such a shape as to completely fill the calibre of the tube. The round and polished head of a chicken leg-bone would, by its size and form, exactly accomplish this; and the history of the origin of the cough rendered it in the highest degree probable that this constituted the obstruction, and was the cause of all his trouble. To the parents, I stated this as my unqualified opinion, and expressed my apprehension that it would be a serious case, unless in some way the bone could be expelled by coughing, or otherwise removed. The operation of tracheotomy I thought would be of no benefit, as the substance was fixed in a position too far to be reached by any instrument with which extraction might be attempted with any prospect of success. Moreover, my diagnosis of the case was received with so much incredulity that I felt certain that any proposition of an operation would have been immediately opposed by the family and their friends. I concluded that it would be best to trust almost entirely to nature, with the hope that it would be expelled by coughing, after the bone should become loosened from its position by partial decomposition of its substance and suppuration of the parts surrounding it. I prescribed an expectorant and tonic mixture, containing iodide of potassium and the compound tincture of bark, to promote expectoration, and thereby favor the loosening and expulsion of the bone. To facilitate this, I also directed the patient to rest occasionally, during the paroxysms of coughing, with his arms and face upon the carpet, while his body remained upon a low couch. The directions were repeatedly observed; but no benefit resulted from the attempts to favor the removal of the body by aid of gravity. After a few days, he began to expectorate a little, and evident signs of improvement followed. By examination of the chest, it appeared that the increased bronchial secretion had loosened the bone a little from its previously firm position, as a feeble current of air could be heard to pass by the point of obstruction. This improvement in his symptoms encouraged in my mind the hope that, after partial decomposition of the bone by absorption, the solid nucleus of osseous matter would be expelled by an effort of coughing. The expectorant and tonic treatment was continued unchanged. For about three weeks, he slowly improved in strength, and regained his natural buoyancy of spirits; but still the cough remained persistent and unchanged in character. During this time, I called in, at different times, Drs. Alder and Baker, both of whom agreed with me fully in my opinion of the case, and also in the propriety of trusting to the chances of a natural expulsion of the foreign body from the place in which it was lodged. By the 28th of December, his symptoms became more unfavorable. Loss of animation and general strength was soon followed by complaints of pain in the hip, as he expressed it, leading his parents to think he was suffering from a rheumatic difficulty. On visiting the patient the day following, I found him very much altered in appearance, which was expressive of great suffering.

"The pain which he referred to the hip proceeded from a diffused tumefaction over the lower border of the ribs. The tenderness over this region was so great that he could not tolerate a thorough examination. The slightest touch would provoke resistance and cries of pain. His breath was fetid, and the cough continued of the same character, only the paroxysms were more frequent. The symptoms revealed by auscultation were unchanged, except an increased amount of dulness and tenderness over the subaxillary region. I gave it as my opinion that an extensive abscess had formed in the lung, resulting from a gangrenous condition of the parts below the point of obstruction, and that the matter was emerging from the chest in an unusual way, by passing through the

attachments of the diaphragm, and forming a tumor over the border of the ribs, simulating in appearance an abscess of the liver. The pain increased in severity as the swelling advanced. The patient rested in a semi-recumbent position, with the thighs strongly flexed upon the body, by which the parietes of the abdomen were relaxed, and the pressure over the tumor diminished.

"In consultation with my friends at this time, it became a question whether this abscess was from the liver or the lungs, and at times some doubt was entertained as to the source of the tumor. The patient's strength failed rapidly. The fetor of his breath was arrested by the administration of the chlorate of potassa, and the bark and iodide of potassium were prescribed as an alterative and tonic.

"January 1st.—The tumor now increasing antero-posteriorly, and presenting no appearance of pointing. Pain and tenderness over the whole of the right side below the fourth rib. These facts confirmed me in the opinion that the tumor was formed by purulent effusion within the chest. Prognosis very unfavorable. On the night following I was sent for in haste, and found him sinking rapidly, and in the most extreme agony of pain. An expression of intense suffering escaped with almost every breath, and the slightest effort to change his position was always attended with such cries of agony as to unnerve the stoutest heart. To his parents the trial was peculiarly severe, and called forth from his friends the warmest sympathy and the most devoted attendance. At this time his suffering was partially relieved by opiates, but during the night his condition appeared extremely critical, and hardly any expectation was entertained of his recovery. On the day following Dr. Grave was called in consultation. By him the difficulty was regarded as an abscess of the liver, and he appeared altogether incredulous of the existence of any foreign substance in the lungs. Fomentations were applied to the side very assiduously, to the great annoyance of the patient, as the slightest pressure upon the side or movement of the body occasioned immediate and severe pain. This was considered necessary, to favor the pointing of the supposed hepatic abscess. Internally the consulting-physician prescribed cherry-laurel water, and directed the use of opiates to be discontinued. For a time my opinions and advice were disregarded, and the case was treated as an abscess of the liver, while the constant cough and peculiar symptoms of disorder of the lungs were quite overlooked, or considered unimportant. As the influence of the opium passed off, his sufferings returned as severe as before, and for several days and nights he had no respite from pain of the most agonizing character. Opiates were now gladly resorted to again, and followed by immediate relief. He was allowed to return to the use of wine and bark, and on the 7th I added the compound syrup of the phosphates. During this time he was becoming more emaciated, and it was apparent that he was gradually failing. No pointing of the tumor had yet appeared; on the contrary, it extended transversely across the body, along the lower border of the ribs, reaching at this time nearly to the spine, and measuring ten inches in its antero-posterior diameter. No fluctuation could yet be detected, but on the 10th an exploring operation was decided upon, and the day following, assisted by Drs. Alder and Grave, I introduced an exploring needle, along the groove of which a drop of pus immediately appeared. Withdrawing this, I introduced a small trocar and cannula, and drew off nearly a pint of extremely offensive pus. The odor was peculiarly sickening and pungent, and identical with that which I have noticed proceeding from gangrene of the lung, when revealed by post-mortem examination, only of far greater intensity.

"Fearing there might not be an adhesion between the peritoneal covering of the tumor and that of the abdominal parietes, I opened the tumor by a puncture merely; and, after the evacuation of the pus, I closed the wound tightly by adhesive plaster. By the time the pus should reaccumulate there would necessarily be an adhesion about the point of puncture, through which a free opening could be made without danger of allowing the pus to escape into the cavity of the peritoneum, provided an operation should be again necessary; for I entertained the opinion that it might soon find a natural exit from the body by ulceration into the colon, upon the angle of which I thought the tumor to be

impinging. The extensive tumefaction had subsided only in part by the discharge, after which it began to enlarge again in the same form as before. We decided to operate again on the 11th, but on the morning of this day he suddenly began to pass by the bowels pus of precisely the same odor and character as that removed from the tumor. Five or six evacuations followed in rapid succession, each one filling the house with the same extremely offensive odor. As these evacuations were going on the tumor subsided, and the patient became greatly relieved of his previous suffering. It was at once evident that the sac had opened into the colon; and as this would be at the deepest and most dependent part of the tumor, we believed it would permit a more complete and constant escape of the pus than by an external opening; and from this consideration I was disposed to regard the occurrence as favorable, and affording the patient a little better chance of recovery. In the mean time the cough continued unremittingly the same, and auscultation still revealed plainly enough to my mind the fact that some foreign body still obstructed the respiration in the right lung. As the discharges continued, the pain gradually subsided, and soon a slow and gradual improvement was apparent. The discharges of pus by the bowels continued about a week, each evacuation being preceded by a sharp pain in the region of the arch of the colon on the right side. About this time the patient had a more than usually violent paroxysm of coughing; after which he appeared much relieved, and the cough almost entirely ceased. On examining the chest, I found the air entered more freely into the lung than previously; and these facts led me to infer that the bone had either been loosened in its position, or it had been coughed up and swallowed. The tumor first subsided over the lateral region, leaving an elevation posteriorly over the lower part of the chest, extending nearly to the spine, and mounting upward over the ribs. This convinced me of the correctness of my diagnosis as to the cause and source of the abscess, and it was further confirmed by the facility with which the fingers could be inserted under the ribs, and pressed, without producing any pain, upon the lower margin of the liver. There was the same dullness over all the inferior portion of the chest, and some tenderness on percussion. The discharges of pus gradually ceased, but the cough soon returned again as before. In the mean time the patient steadily improved in strength, and apparently was rapidly recovering. As soon as he was able to travel, the family left for the East early in February, by which time the patient could walk about the house without pain, and with considerable freedom of motion. I was still as positive as ever that all his symptoms resulted from a bone in the lungs, and expressed the opinion that, if still remaining, it would probably be in part absorbed, and the remainder might yet be coughed up at some future time.

"The remaining history I will give by extracts from letters written to me by Mr. Barrow, from Baltimore. The first was dated March 3d, 1859, of which the following is a portion:—

"Believing that you will be interested in the progress of Alexander's case, I hasten to inform you that your diagnosis of his disease has proven correct. *He has thrown up the bone.* The substance when discharged was about the size of a common garden pea, and *solid bone*, and was undoubtedly a part of a chicken leg-bone. It was very much decomposed, but in its present dry state still shows the grain of the bone. After he left Davenport, he improved rapidly in strength, and fattened up very much, but his cough still continued. He has *not coughed at all* since the bone was expelled, and I now have hope of his ultimate recovery.' At the time of writing this he was having symptoms of intermittent fever.

"On the 9th of April I received from Mr. Barrow another letter, inclosing the bone, 'or rather,' he writes, 'the little that is left of it; it having been much broken and wasted by handling. After I wrote you, Alexander continued quite sick for four or five days, with high fever and some inflammation of the right lung. He is now rapidly recovering, and seems quite sound, not a vestige of cough remaining.'

"On the 19th of May, he writes again as follows: 'Since the last attack, of which I wrote you in a former letter, Alexander has been steadily growing

in health and strength. He is, of course, still quite weak in that lung, and unable to engage in violent plays, but there is every prospect of his becoming a stout and hearty boy.'

ART. 40.—*The prognosis of Asthma.*

By DR. HYDE SALTER, Assistant Physician to Charing Cross Hospital.

(*British Med. Journal*, June 18, 1859.)

The prognosis of asthma must be based partly on the actual condition of the patient, and partly on the previous history of his case. As far as relates to the actual condition of the patient, the circumstances by which our prognosis will be influenced are his age and the presence or absence of organic mischief in the heart or lungs. As far as relates to the previous history of his case, the circumstances influencing the prognosis are the duration of the attacks (rather than their severity), their frequency, the completeness of the recovery between them, their apparent tendency—that is, whether they appear to be getting more frequent and more severe, or less frequent and lighter—and, lastly, the length of time the asthma has existed.

1. *Circumstances connected with actual conditions.*—The influence of age in determining the tendency of asthma constitutes a very constant and characteristic feature in its clinical history. In young asthmatics the tendency is almost invariably towards recovery; whereas, in a person who is attacked with it after forty five, the tendency is generally towards a progressive severity of the disease, and the production and aggravation of those complications by which asthma kills.

In the young asthmatic under fifteen, one may almost safely predict, barring organic disease, a favorable issue, and tell him he will most likely gradually "grow out of" his complaint. The author can call to mind, at the present time, four or five cases of individuals who have thus grown out of their malady, and are now perfectly well, but whose childhood was rendered one of great suffering by asthma. In asthma commencing from twenty to forty, age tells much less in favor of the patient, and the prognosis is doubtful; but if the lungs are entirely free from any organic complication, if there is no emphysema and no tendency to bronchitis, the patient has, under proper management, a very fair chance of recovery. Above forty-five, the prognosis should always be guarded, if not absolutely unfavorable.

Now, why is this? Why, *ceteris paribus*, should age have such a determining influence on the tendency of asthma? Partly for obvious reasons; that in the young the powers of repair are great, in those advanced in life, feeble; that in the young the pulmonary congestion, that always accompanies asthma, completely vanishes in the intervals of the attacks; the capillaries recover their tone, and the nutritional balance of the lungs is regained; whereas in the old the engorged capillaries are slower in recovering themselves, and the pulmonary congestion hangs about the patient some time after the asthmatic spasm has disappeared, manifesting itself by a profuse mucus exudation, and a certain thickness of breathing and incapacity for exertion; if the attacks are frequent, this pulmonary congestion never entirely vanishes, and thus is produced a kind of spurious chronic bronchitis, with a tendency to aggravation by each attack, which is one of the worst and commonest complications of the asthma of the old. Another complication of asthma—dilated right-heart—is much more apt to occur in the old than in the young, and for the very reason that the dyspnoea in the old is so apt, by the generation of this spurious bronchitis, to pass from the occasional and intermittent form characteristic of pure asthma, and become continuous and permanent. As far as Dr. Salter has seen, the right side of the heart never becomes dilated by asthma, however severe the dyspnoea may be during the attacks, if the intervals between them are considerable, and the recovery in those intervals complete. It is a continued, and not an occasional and transient arrest of the pulmonary circulation that dilates the right side of the heart. It is from this fact that we see dilatation of the right side of the heart, venous stasis, and general dropy, so much more common a result of chronic bronchitis than of asthma.

But this greater disposition in asthma to produce organic change in the old than in the young is not the only circumstance which imparts to age its determining influence on the tendency of the disease. In asthma, as in all other constitutional disorders, we have in the young much more room for hope from those changes in the type and build of the constitution which in them are so marked and striking; whereas in the old the constitution is set and fixed, and we have but little to hope on this score. Indeed, the existence of a constitutional peculiarity in a child is of itself almost a presumption that he will one day lose it; while in an old person it furnishes a presumption equally strong that it is fixed and indelible.

Again, in an old person the probability is that the asthma has existed longer than in a young one, and the chances of recovery from asthma (as in the case in almost all diseases) are in inverse proportion to the length of time that the disease has existed.

But there is a special reason, depending on the nervous nature of asthma, that makes us sanguine of recovery in the case of the young; and which explains at the same time the greater frequency of pure nervous examples of the disease in the young than in the old. What, for want of a better name, we must call "nervous irritability," is much more marked in the young than in the old. It appears continuously to diminish from birth forwards. Sources of irritation that in the young are adequate to the production of the most violent nervous phenomena, in mature life are powerless to produce such effects. The cutting of a tooth, for example, will send an infant into epileptic convulsions; one never hears of a fit from the second dentition. A young child will grind its teeth, or even be violently convulsed, from the presence of acarides in its rectum; but one never sees such results from worms in the adult. And thus the diminution of nervous irritability, as childhood passes to youth and manhood, may make an attack of asthma less and less prone to occur on the superintention of its exciting causes, and less intensely spasmodic when it does occur. This diminution of nervous irritability the author believes is the true explanation of that gradual recovery of young asthmatics which is so common, so almost universal.

Lastly, age influences unfavorably the tendency of asthma, not only because it is more apt in advanced life to engender organic disease, but because it is also more apt to have organic disease as its cause. The causation of asthma in youth and age is indeed very different. In age there is commonly some appreciable organic basis for it; in youth much more rarely.

The other circumstance in the actual condition of an asthmatic determining the tendency of the disease in his case, is the *presence or absence of organic disease in the respiratory and circulatory organs*. This is the most important of all the points affecting the prognosis, and is, of itself, sufficient to turn the scale. Its exact value is this: if the heart and lungs are perfectly free from organic disease, recovery is possible; if they are the seat of such organic disease as tends to engender bronchial spasm, and as is in the given case the actual cause of the asthma, recovery is *impossible*. The cause is incurable, and therefore its consequences.

2. *Circumstances in past history.*—A very important one of these is the *length of the attacks*. One of the ways in which repeated attacks of asthma damage the lungs is by the production of permanent pulmonary congestion. At each attack, the shutting off of air by the narrowed bronchules, suspends the normal respiratory changes of the blood in the capillaries; this produces capillary arrest, and this, engorgement of the whole pulmonary circulation, capillary and venous. Now this pulmonary congestion, as is the case in all derangements of vascular balance, congestive or inflammatory, becomes formidable and chronic in proportion to the length of time that it has existed. If the attack is short, and the speedy relaxation of the bronchial tubes quickly readmits a free supply of air, the vessels are at once relieved, the blood passes on, and the transient congestion leaves no trace behind it. But it is very different if the attacks last several days, or even weeks, as is sometimes the case. Then the capillaries and venules, long distended, never completely recover themselves, their *tone* is lost, and the pulmonary congestion, manifested by chronic dyspnoea

and expectoration, is permanent. This pulmonary congestion, involving as it does the bronchial tubes, and occluding them with mucus, becomes, in its turn, a source of bronchial irritation, and thus tends to excite and keep up the asthma which has caused it. The length of the attacks, therefore, has an important bearing on the prognosis, because it has an important influence in determining the production of that particular damage of the lung which is the commonest way in which asthma becomes hopeless.

The frequency of the attacks is another point bearing directly on the prognosis, and for the same reason and in the same manner as their duration. The more frequent they are the worse the omen. If the intervals are so short that the lungs have not time completely to recover from one attack before the occurrence of another, the omen is very bad, because the mischief of each attack being engrafted on some portion of that of its predecessor, the organic derangement is accumulative, and the case one of progressive disorganization.

Another point that should be carefully ascertained, is the completeness of the recovery between the attacks. The author always asks a patient, "Is your breathing in the intervals of the attacks perfectly free from any shortness or difficulty whatever?" If he says "Yes," then he knows that his attacks leave no permanent vestige on his pulmonary circulation, that it recovers itself absolutely, and that the disorganizing tendency of asthma does not in this case furnish any ground for alarm. But if he says "No," he is sure that the mischief which the attacks inflict persists, and confidently expects to find other evidence of organic disease, and forms an unfavorable prognosis.

Especially is an unfavorable inference to be drawn from the persistence of expectoration. Spitting is one of the worst signs in asthma. In fact, what is called "humid asthma," is neither more nor less than asthma complicated with bronchial inflammation or congestion.* Wherever there is chronic expectoration, we may be sure that the lining membrane of the air-passages is the seat of organic change. Indeed, the mucous exudation is a positive evidence of, and in its quantity a measure of, that loaded condition of the bronchial vessels which it is its object to relieve. A certain amount of expectoration after each attack, of a thick gelatinous mucus, like pellets of very thick arrowroot, is common, almost universal; especially in the morning succeeding the attack (indeed, the most transient fits of asthma, lasting only a few minutes, are generally followed by this expectoration of a pellet or two of this mucus, with whose discharge the little attack appears to terminate); and from such an expectoration, if it lasts only a few hours, or even days, no harm is to be inferred; it is when it never completely ceases that it becomes ominous. Wherever there is mucous exudation, there is cough; *chronic cough*, therefore is a very bad sign in asthma, and tells just the same tale as the expectoration.

There is one prognostic sign, common to all disease, and which should not be disregarded in asthma; it is the *direction* that the disease appears to be taking. Is it becoming more or less intense? Are the attacks becoming more severe and more frequent, or milder and more distant? One often derives from this source a most valuable indication of what the upshot of the case will be. The loss and the acquisition of the asthmatic tendency is generally a gradual process, and the future of a case of asthma often but a reflection of its past history. If a patient can tell you that his attacks have mitigated in severity and are getting less frequent, you have, especially if he is young, one of the most hopeful auguries of his ultimate recovery. Such a case would probably get well of itself, without any medical interference. If, on the other hand, the disease is *gaining* on him, you have what must be considered a very bad sign, and one which, unless some speedy and great change is induced by some of those means which control asthma, will leave but very little hope.

There is yet one more circumstance that will very materially affect our prognosis; it is our ability or not to detect the exciting cause of the attacks, and the controllability of that exciting cause. If the exciting cause is clear, single, and

* By an unfortunate looseness of nomenclature, the term "humid asthma" was formerly, and is even now, applied to cases of simple chronic bronchitis that have nothing specially asthmatic about them.

such as may be prevented, nothing is simpler than the treatment of the disease, or more certain than a favorable prognosis. We hold in our hands, as it were, the key of the disease, and by shutting off the exciting cause, we may indefinitely postpone a repetition of the attacks. If the attacks never occur but as the consequence of this exciting cause, and its recurrence is permanently prevented, this preventive treatment amounts to an absolute and final cure. If, for instance, what is not uncommon, there is some particular locality where the asthma is sure to come on, and in no other, you have simply to say, "Avoid that place and you are cured." Or if, which is much commoner, there is one place and only one, where the patient never has any attacks, you may say, with almost equal certainty, "Stick to that place, and you have won the last of your asthma." Or if, again, the asthma never comes on but as the result of some error of diet—eating something known to disagree, or eating largely and late in the day—the patient's cure is certain if he will only keep himself within strict dietetic rules, and he may safely and positively be told so. If, on the other hand, the exciting cause is not to be detected, or, being detected, not to be prevented, the omen is bad; for, in the one case, we are debarred from adopting any preventive treatment, or in any that we may try we are hitting in the dark; and, in the other, the prevention of the attacks is manifestly impossible.

If, then, an asthmatic were to present himself and seek an opinion as to his prospects, having ascertained his age, and carefully scrutinized the condition of his chest, Dr. Salter would put to him the following questions: How long do your attacks last? How often do they occur? Do you lose all traces of shortness or difficulty of breathing between the attacks; or is the breathing always a little difficult? Do you habitually cough and spit? Does the disease appear gaining on you, or the reverse? Is the exciting cause of the attacks clear, and can you undertake that it shall not recur?

If the patient is young, the chest sound, the attacks short, the intervals long; if there is no permanent shortness of breath, no cough or expectoration; if the attacks are getting milder or rarer, and if the exciting cause is clear and such as may be obviated, then a favorable prognosis may be given.

If the patient is old, the lungs damaged, the attacks frequent and severe, the breathing never quite free, coughing and spitting constant, the disease apparently gaining ground, and the exciting cause occult or irremediable, then, *quoad* all or any of these circumstances, there is no alternative but to give an unfavorable prognosis.

ART. 41.—On a peculiar Auscultatory Phenomenon. By J. THORBURN, Surgeon to the Chorlton-on-Medlock Dispensary, Manchester.

(*British Med. Journ.*, June 18, 1859.)

"The best mode of describing the phenomenon in question," says Dr. Thorburn, "will be to detail one of the cases in which I first encountered it.

"This patient was a young man suffering from a digestive disorder, and with no symptom of chest-disease. I examined the thorax merely as a precautionary matter, and found percussion perfectly normal everywhere; no unusual dulness at either apex, nor in the cardiac nor sternal regions. On auscultation, the cardiac sounds were quite healthy, as was also the respiratory murmur over the greater part of the chest. Over the most of the left apex, however, and at the inner third of the right, there was audible what I took to be a loud blowing murmur with the first sound. It was distinctly of a blowing character, without much harshness, perfectly synchronous with the cardiac systole and with the pulse, and very loud. There was no *bruit* in the cervical vessels. To examine the sound more carefully, I made the patient hold his breath, when, to my surprise, I found that the murmur completely ceased. This I repeated several times, that there might be no mistake. It was perfectly plain that, though completely identified with the vascular systole, the sound was present only during the expiratory and at the end of the inspiratory process. There was nothing else abnormal present; and I treated the digestive symptoms, giving no opinion about the thoracic murmur. The patient has since

continued for more than two years in apparently perfect health; and I have ascertained that the same sound is still present, but much weaker.

"In this case, then, the sound was met with in one who, in the absence of other evidence, has no thoracic disease. I met with a perfectly similar sound in a woman, who had distinct evidence of tubercles and of a large vomica on the left side. It was confined to the same regions; and post-mortem examination, while it confirmed the existence of the phthisis, showed nothing else to account for the peculiar murmur. I have noted five or six other cases where I have met with the same thing, and in no particular were they the least alike with regard to the existence of tubercle, cardiac, or aortic disease.

"The question then is, what produces this sound, and what condition may we regard it as evidencing? It must be either a respiratory sound, modified by the heart or great vessels, so as to have a cardiac rhythm, or a vascular sound modified by the respiration. From a careful examination, I have come to the conclusion that it is of the former character; and that what is heard is the expiratory murmur, and the end of the expiratory murmur itself, *saccadé* or jerked by some undue impulse. I think it probable that this impulse is communicated by a nervously excited, or perhaps *slightly* dilated aorta, just as the action of the heart may sometimes give a cardiac rhythm to a friction-sound, which is really pleural. The greater comparative weakness of expiration will account for its being heard chiefly at that time.

"There are certainly some difficulties in the way of this explanation; but I cannot arrive at a better. I cannot conceive that any sound of vascular origin so loud as this could be masked by inspiration, or lost when the breathing ceased.

"One would, however, suppose that some similar jerking or cardiac rhythm should be heard over the trachea; and in one case, though only in one, I fancied that this was the case. In this instance, the patient declared also that, after much running or the like, he could hear and feel his breath come out 'in jumps,' as he expressed it. I have myself felt the same thing after great exertion, and have ascertained that it corresponded with the pulse. It has always, however, disappeared before I could have a stethoscopic investigation. I believe that, in the cases I have cited, the condition is owing to slight over-action, from some cause, of the aorta; but I should be glad if any one could afford a better explanation. I am convinced that the sound is not very infrequent; that, though loud, it does not indicate serious organic disease; but that, by a not very skilful examiner, or by one unaware of its existence, it might easily be supposed to have such an indication."

ART. 42.—*The Hydrophone.* By Dr. S. SCOTT ALISON, Physician to the Hospital for Diseases of the Chest, at Brompton.

(*Medical Times and Gazette*, July 9, 1859.)

The hydrophone is a small water-cushion which is placed under the end of the stethoscope. A thin membrane, it appears, offers no sensible impediment in the way of water intensifying sound, although thick and non-elastic or non-vibrating bodies did, and taking advantage of this fact, Dr. Alison made a waterproof bag of India-rubber to contain water. The India-rubber membrane is so thin as to offer little or no resistance to the undulations of water. The bag is about the size of a large watch, and is sufficient to receive the extremity of an ordinary flexible stethoscope, or to form a medium of connection between the external ear and a solid, sounding body, such as the human chest. The thickness of the bag is not above the third of an inch. Nothing is gained by greater thickness, and the advantages of sound having to travel only a short way, and also of only a very little weight pressing upon the sounding-body, are secured. The sonorous pulses, so to speak, are readily taken up from the solid body or the chest, and are conveyed through the water, and membrane on either side, and reach the edge of the aperture of the hearing-tube and the contained air, whether the instrument be the flexible stethoscope, the human ear, or any other hearing-tube. This instrument possesses some advantages. It fits admirably and exactly upon the part of the chest to which it is applied,

however uneven and irregular, whether this be a projecting rib or a deeply sunk intercostal space, a broad level surface of a narrow depression, the clavicle or spine or the scapula. By its other side the hydrophone fits as exactly to the aperture of the hearing-tube or to the exterior of the human ear. Every part of the solid body covered by the hydrophone contributes its quota of sound. The fitting of the instrument to the hearing-tube prevents the escape of sound from the contained air to the external atmosphere, and by this means resonance of the contained air, and of the containing tube is greatly promoted, with the result of a greatly augmented sound. The edge of the hearing-tube sits so easily, and with so little resistance from the water-bag, or hydrophone, that the vibrations which are communicated to it are readily reciprocated, and find none or little of that resistance so fatal to its vibrations when pressed upon a solid body.

The hydrophone may be employed either in aid of the stethoscope or as a distinct acoustic instrument by itself. In the case of wooden stethoscopes which are solid, applied to the distal aperture, it is injurious by damping sound; in the case of the hollow wooden stethoscope it is of no material value, for water is an indifferent conductor of sound from a solid body to another solid body, and it may be stated that the hollow wooden stethoscope is more a solid than an air instrument. What it gains as an air instrument from water is lost as a solid instrument. In fact, more may be lost in one way than is gained in the other.

It is in the case of the flexible stethoscope that the hydrophone forms a material aid in auscultation by hearing-tubes. The flexible stethoscope is here meant to signify all stethoscopes into whose construction flexible tubes enter, either forming the whole tube part of the instrument, as in the ordinary flexible stethoscope, or part only, as in Camman's double stethoscope, or my own differential stethoscope. These instruments are essentially air instruments. In the case of all these instruments the intensification of sound by the hydrophone is so material, that without its employment their resources are by no means fully made available. To have the full benefit of any one of these instruments the hydrophone is essential. Respiratory sounds, healthy and morbid, which are audible with the simple flexible stethoscope, are made more audible when the hydrophone is placed under it. Rhonchi and moist crepitation are strikingly augmented. Vocal resonance, solid and cavernous, dry and moist, are in a marked manner amplified. Pectoriloquy, accompanied with much vibration of the chest, is increased in a very striking manner. Murmurs of the heart, usually heard in a mitigated form only by flexible stethoscopes—at least in Dr. Alison's experience—are conveyed to the ear so as to produce a very distinct and defined sensation. To sum up, it appears that flexible stethoscopes, however ingeniously constructed with twisted wire and other contrivances, are, compared with the simple wooden stethoscope, essentially deficient as sound-conveying instruments, some few sounds excepted; but that the hydrophone greatly counteracts this deficiency and brings them up much more to the rank of Laennec's stethoscope. But the inquiry may be made: What good purpose can the hydrophone subserve under such circumstances, if it can only bring a second-rate instrument nearly up to the position of another? The answer is this. There are situations and occasions which require the flexible instruments, as is well known, and it is certainly important to render them, defective though they are, as useful acoustic instruments as is possible.

(C) CONCERNING THE CIRCULATORY SYSTEM.

ART. 43.—*Cursory Remarks on the Diagnosis of Fatty Heart.* By Dr. HENRY KENNEDY, Physician Extraordinary to Sir P. Dun's Hospital, Dublin.

(*Edinburgh Medical Journal*, July, 1859.)

The following remarks are calculated to assist our diagnosis not a little:—
"There is," says Dr. Kennedy, "a physical sign, however, which, though not always present, may give us valuable assistance. Nor do I find that any

writer has noticed it in connection with the diagnosis. I speak of enlargement of the heart where there is also fatty degeneration, and this without valvular disease. In Quain's valuable tables, which I take as independent observations, and so going to confirm my own, out of eighty-three more than half presented this state. Hence I cannot but conclude that enlarged heart forms an important element in what may be called the natural history of the affection; and I do not find that, in this point of view, it has been noticed by any recent writer. Fatty change is, in truth, by far the most frequent cause of enlargement of the organ, where there exists at the same time no valvular disease. For every one must be aware that hypertrophy *per se*—the heart's texture remaining sound—is very rarely met with. Hence, if we have an enlarged heart and healthy valves, the strong presumption is that the organ is fatty. But even with a previous knowledge of this fact, I am ready to admit that enlargement, even to double the average size, is not by any means so easily made out as might *a priori* be supposed. In the great majority of the cases there is more fat than natural under the skin; and nothing is more common than to find it in quantity in the anterior mediastinum, to say nothing of the varieties to be met naturally as regards the relative position of the lung and heart. Still, the difficulties may, I know, be often overcome by an accurate examination; and I would specially mention the plan of using percussion in varied positions of the body. But some one may ask here, Is not this enlargement of the organ just as likely to be overlooked as any other physical sign connected with the disease? My answer is in the negative; and for this reason, that the pulse at the wrist leads us to look for it. You are all aware that on this last sign much has been written as diagnostic of fatty heart. I must here state my conviction that it has been the exceptional cases which have been commonly described as marking the disease; such as slow, unequal, intermitting, or very rapid pulse. Now, I do not deny that these occur in cases of fatty heart. I have met examples of all of them. But what I do say is this, that the pulse most usually met with is natural as to frequency, at the same time that it is fuller, passing sedately, as it were, under the finger, and giving the idea of being diffident. It is, in truth—contrary to what is usually taught—the pulse of hypertrophy, but not attended with the same strength; and Hunter's expression might almost be applied to it, as being 'action without power.' Now, you will observe that such a pulse is exactly in keeping with the state of the heart which has been just described; it is what we would expect; and whatever doubts may arise about the most common character of pulse, there can be none, it may be stated, as to the frequency with which enlargement of the heart occurs in fatty degeneration, being fully one-half the cases detailed. I stop not to inquire the precise cause of the hypertrophy, but only to state the fact, and my own experience about it."²

We would also direct attention to a remark about dyspnoea as a symptom.

"Now, it is not the symptom itself to which I would direct attention, but the disproportion which almost constantly exists between the complaint of the patient and the labor of the respiration as evidenced to our eyes. In the history of the complaint, I am really not aware of any other single symptom more striking than this. The patients tell you that their great suffering is from dyspnoea, that they cannot make the slightest exertion; and yet, when you look at them, you see little or no corresponding movement of the chest. The contrast between this state and where there exists valvular disease, as, for instance, of the left auriculo-ventricular opening, is truly striking. Nor does this state exist only where there is fatty heart. It will be observed where the patient, in addition, gets an attack of bronchitis, very slight to all appearance, and yet a most fatal affection; and I have reasons for knowing that grave errors in prognosis have arisen in these cases, as, I believe, from the very cause to which I allude; that is, the respiration looks so quiet as to throw the

² It has yet to be determined whether slow pulse occurs in any peculiar form of fatty heart. That it is by far the exceptional case I have no doubt, and were I to venture to connect it with any one state of the organ, it would be that in which, without any enlargement, there existed true degeneration of the heart's texture, the patients being anything but fat. In most of such cases the effects of wine are truly remarkable.

medical man off his guard. It was gradually that I arrived at what appear to be fair reasons for this state of things. In the first place, the cartilages of the ribs are very generally more or less ossified; in the second, the intercostal muscles are very apt to be either covered with fat or degenerated; and, in the last place, the heart itself, whilst seriously altered in its texture, does not present any impediments, in the shape of valvular disease, to the current of the blood; and thus it is, with a disease of slow progress, as we must suppose fatty degeneration to be, that the system gets gradually accustomed to the change, and to a degree which it is impossible for it to do when there exists a direct obstacle to the circulation. It has further appeared to me that this want of proportion—as it may be well called—between the patient's sufferings and the physical exertion to relieve them, is particularly to be observed when the right heart is the furthest advanced in disease; and bearing out this, I have seen cases where the pulse at the wrist was steady and equal, not beating more than 80 in the minute, and this going on to the very last moment of existence. At any rate, whatever the explanation be, the fact itself has repeatedly come under my notice, and it appears to me one well worthy of attention."

ART. 44.—Retroversion of the Aortic Valves from Disease in the Sinuses of Valsalva. By Dr. GULL, Physician to Guy's Hospital, &c.

(*Guy's Hospital Reports*, 3d series, vol. v. 1859.)

Physiologists have explained the action of the sinuses of Valsalva for adapting the aortic valves to prevent regurgitation during the diastole of the ventricle. They have shown that during the ventricular systole, the sinuses, on account of their thinness, are much dilated, and thus the valves made tense; that as the ventricular systole ends, the recoil of the sinuses adjusts the valves for the support of the arterial column. How perfectly this mechanism fulfils its function is proved by the clearness of the second sound of the heart during life, and by the thinness and definition of the surfaces of contact after death. The simplicity and the perfection are wonderful.

The object of these remarks is to draw attention to an accident to which there is a liability when the sinuses become rigid from atheromatous changes. Under such circumstances the sinuses may fail to throw the valves inwards towards the centre of the vessel, and these, so deprived of that mutual support which they have when the recoil is normal, may be exposed to the danger of retroversion. Dr. Hodgkin, and subsequently Dr. Chevers, referred to many of the conditions which produce retroversion of the aortic valves, but neither has noticed the direct influence of the want of elasticity in the sinuses here alluded to. The following case, admitted into Guy's Hospital, under the care of the late Dr. Hughes, affords a good illustration of such an accident.

Case.—*Sudden dyspnoea and palpitation; orthopnoea; dropsy; death after fifteen weeks. Atheroma of the sinuses of Valsalva; retroversion of one of the aortic valves; great dilatation of left ventricle.*—John H., æt. 39, a day laborer in the docks. Always had good health until ten weeks before admission into Guy's Hospital. His symptoms—breathlessness, orthopnoea, palpitation, and cough—came on suddenly. He never had rheumatism. The distress of breathing continued, and was attended with so much pain across the chest, that an aneurism of the aorta was suspected. The pain was, however, probably attributable to sudden and continued distension of the left ventricle. The stethoscopic symptoms were only those of aortic regurgitation. He remained unrelieved, and died after being five weeks in the hospital.

Post-mortem examination by Dr. Wilks.—Masses of apoplectic effusion in both lungs, but principally in the right. Great dilatation of the left ventricle, with only moderate hypertrophy, the form of the ventricle being remarkably globular from transverse distension. The bulging of the posterior wall of the ventricle behind the mitral curtain was also very remarkable. The muscular columns supporting the chordæ tendinæ of the mitral were much elongated, but not hypertrophied. The sinuses of Valsalva were extremely atheromatous. This was especially the case with two of the sinuses. The aortic valve corresponding to one of these was retroverted. Except this apparently accidental

folding over of the valve, the valves were healthy. The aorta above the sinuses was free from atheroma, and healthy. Kidneys and other abdominal viscera healthy.

ART. 45.—On the Sudden Increase of White Blood-corpuscles during the last stage of Cachectic Diseases. By Dr. GUBLER.

(*L'Union Médicale*, July 2, 1859; and *Med.-Chir. Rev.*, Oct. 1859.)

The author relates two cases in which, after the proportion of white and red corpuscles had been observed during a cachectic malady to remain normal for a long time, the number of the former suddenly increased to such an extent as to constitute well-marked leucocythæmia.

CASE 1.—A man, æt. 21, of scrofulous habit, who six months before admission to the Hôpital Beaujon, under Dr. Gubler, was attacked, in July, 1858, with intermittent fever, which would not yield to quina. He was then treated with *karapa*, a substance that has been proposed as a substitute for quina. The spleen being enlarged, the blood was examined microscopically on the 17th and 20th of March, 1859, when there was no increase of white corpuscles, about a dozen being counted in the field; on the 24th, pneumonia of the right lung supervened, and there was now an increase of from thirty to forty in the field; on the 25th, from fifty to sixty were counted. Death ensued from pneumonia on March 27th. The post-mortem confirmed the diagnosis of pneumonia and hypertrophy of the spleen.

CASE 2.—A young man, æt. 18, admitted into the hospital with Bright's disease, April 9th, 1859. He remained for a week, and the blood examined at this time was normal as regards the proportion of white and red corpuscles. He returned in a state of general anaemia a week later, and when the blood was examined on May 13th, the red corpuscles were found to be ill-formed, not forming the ordinary rouleaux; and of the white from fifty to fifty-five were counted in the field, instead of the twelve or fifteen previously seen. The latter had undergone a still further increase on May 13th, and there was then noticed a number of amorphous masses of a white color and irregular shape, apparently consisting of coagulated fibrin. Death ensued on May 14th. The post-mortem showed the kidneys to be granular and contracted, the liver and heart enlarged, and the spleen atrophied and flabby.

ART. 46.—Rupture of the Superior Vena Cava within the Pericardium. By Dr. JOHN SUORTT, Zillah Surgeon.

(*Indian Annals of Medical Science*, Jan., 1859.)

CASE.—Chinia, æt. 50, native Christian, butler, of healthy, robust appearance, but said to be of intemperate habits, came to me yesterday at 3 P. M. with a chit from his master for advice.

Complains of fever and cold, with a pain in his chest, the latter extends over the whole of the anterior portion of the chest, and is more of an oppressive, deep-seated, aching nature, so that he cannot stoop. So much so, that the attempt to put down or remove a plate from the table aggravates it; states that he has suffered from the above symptoms for the last two days, which he attributes to having taken a cold.

Pulse soft and full, tongue white, skin cool, bowels tolerably regular. I gave him a prescription for a couple of pills and aperient draught, and directed him to apply a mustard sinapism to his chest as soon as he got home.

It would appear that the patient went with the prescription to the hospital, got his medicines, went to the bazar for some purpose of his own, and returned to his master's about 5.45 P. M., where I happened to be at the time. On his return home he sat down and rested himself for about twenty minutes, and then got up and went a few yards to get some water from his wife; at this moment he fell forward on his face and cut the skin of his nose skin deep. The wound bled freely, but he was taken up insensible. I was immediately asked to see him. I found him pulseless, skin cold and perspiring, pupils somewhat contracted and inactive to the stimulus of a lighted candle; breath-

ing stertorous, with a peculiar whiff at the corners of his mouth. He continued in this state for about fifteen minutes, and expired.

Autopsy, fourteen hours after death.—Body well nourished and plump, free from marks, except the wound on his nose; on cutting through integuments, the parietes of chest and abdomen were covered with two inches of subcutaneous fat; on opening the chest the lungs were found gorged with blood, and of a dark color, filling the entire cavity. Pericardium distended; on opening the sac it was filled with dark clotted blood and a circular rent about the size of a shilling in the superior vena cava within the sac, and near its termination into the upper part of the right auricle; half an inch of the cava round the rent had its serous coat destroyed, and the surrounding tissues were infiltrated with blood. Heart empty, large, covered with fat of soft texture, and flabby. The valves were healthy, except the aortic, which was slightly thickened. Abdomen, liver, spleen, and kidneys were greatly enlarged and gorged with blood. All the other parts were found to be healthy.

Remarks.—This is an interesting case, as rupture of the superior vena within the pericardium is not of common occurrence. In fact, I do not remember meeting with an instance on record. Subsequent to seeing me, the patient walked about four miles ere he got back to his master's house, so that the fatigue may have hurried the fatal termination. Some might suppose that the fall produced the rupture; I think not, from the deep-seated nature of the pain complained of, and the appearances presented at the seat of disease. The rent was circular, and the serous coat around for about half an inch destroyed, and the infiltrated appearance of the tissues indicates that that was the seat of an ulcer; and from the congested appearance of the larger glands it would appear that the larger veins were loaded with blood. This, together with the fatigue, may have caused the rupture at this part, from its being previously diseased.

(D) CONCERNING THE ALIMENTARY SYSTEM.

ART. 47.—*Quinine in acute Peritonitis.* By Dr. BEAU, Physician to the Hôpital Cochin, in Paris.

(*Medical Times and Gazette*, July 24 and Sept. 3, 1858.)

The following interesting remarks are from the pen of the foreign correspondent of the '*Medical Times and Gazette*':—

"The experiments made of late years by Legroux, Monnoret, Andral, Trousseau, and other celebrities connected with the French school, have proved, beyond a doubt, the beneficial influence of quinine in large doses in the treatment of acute rheumatism, and other diseases of a similar type. Recently this same medicine has been vaunted in combating certain forms of peritoneal inflammation occurring in connection with the puerperal state, and more especially by M. Beau, who, during his official connection with the Cochin Hospital, employed it in an immense number of cases where that formidable disease prevailed in an epidemic form. So marked was the success which attended his experiments, that he ultimately arrived at the conclusion, that quinine, in large and continued doses, if not a specific in that disease, is at least the most valuable, and at the same time the most powerful curative agent we possess in its management and treatment. Entertaining such views in reference to the value of quinine in puerperal peritonitis, it was exceedingly natural that he should try the same remedy in a similar affection occurring apart from the puerperal state; and hence we find, that in the idiopathic form of peritonitis he has recourse to the same mode of treatment, and urges on his pupils its decided superiority over every other with which he is acquainted. In a disease of this kind, which, in spite of the most active and energetic measures we may adopt, most generally pursues its fatal course with amazing rapidity, we are always disposed to accord a favorable reception to any theory, however novel and unsupported by facts it may be, provided only we be told that its practical application has been followed by merely partial success; and we are always most

agreeably surprised when, with preconcerted notions unfavorable to the theory, we find ourselves confronted with a single fact which, though it may not completely establish the new doctrine, at least enlisted our sympathies in its favor. Such was the surprise which we experienced in reference to the quinine treatment recommended by M. Beau, when we witnessed for the first time a fortnight ago, a genuine case of idiopathic peritonitis treated and cured by this medicine to the entire exclusion of every other therapeutical measure. To those who have been taught in early life that inflammation of the peritoneal membrane demands, in the majority of instances, the abstraction of blood—if not generally, at least locally—until a powerful impression be made on the system, and that this heroic plan of treatment must be followed by the assiduous exhibition of calomel until the patient be brought under the influence of this powerful and dangerous mineral, the solemn declaration of a man of high authority and great experience, to the effect that such treatment is not only useless but positively pernicious, cannot be viewed with any other feeling than that of amazement; and yet, reluctant though they be to abandon a system which has been inculcated in their youth, and which they have been accustomed to regard as strictly orthodox, they must resign themselves to seeing it demolished by another diametrically its opposite.

"As a sequel to the foregoing remarks, we cannot do better than place before your readers the following case, the details of which we extract from our medical notes, taken at the bedside of the patient. A girl, twenty-four years of age, was admitted into the service of M. Beau, at the Hôpital la Charité, and on examination the following symptoms were recognized: Over the lower parts of the abdomen there were great pain and tenderness, which were increased on the slightest pressure: the pulse was small, hard, and quick, averaging about 120 beats in the minute; the skin was hot, dry, and harsh; tongue furred; constant nausea, with occasional vomiting; constipation, the features were pinched, and the countenance indicated much anxiety; respiration hurried; complexion muddy, and the conjunctiva slightly yellow. The patient lay on her back, with the legs flexed on the thighs. Her previous history showed that for some weeks prior to the invasion of the disease she had been in an indifferent state of health, which she attributed to an unusual amount of bodily fatigue to which she had been subjected. In the presence of these symptoms, Mr. Beau at once pronounced the case to be one of acute peritonitis. Treatment: an emetic, composed of ipecac. and tart. antimon. was ordered, to be followed up by a purgative enema. The feeling of nausea having thus been removed, and the stomach prepared for the administration of the sulphate of quinine, this medicine was prescribed as follows: two grammes (equal to thirty grains) were ordered to be divided into three doses, one of which was to be given every eighth hour, and a blister was applied to the lower part of the abdomen, over the spot where the pain and tenderness were greatest. After four or five doses of the quinine, its physiological effects, such as deafness, ringing in the ears, &c., began to manifest themselves, and simultaneous with these there was a manifest diminution of the original symptoms. The pulse from 120 was reduced to 110; the pain and tenderness of the abdomen were considerably subdued: the febrile symptoms, generally, were greatly modified, and the countenance became more placid. The quinine was ordered to be continued, together with the use of refreshing drinks, and on the fourth day of the treatment the pulse fell to 100, accompanied by corresponding improvement in all other respects.

"In a week or ten days from the commencement of the treatment, the full effects of the quinine having been produced, that is to say, the original disease having been, as it were, overcome, the medicine was gradually diminished, and ultimately discontinued. The pulse has fallen regularly, and the patient is now convalescent. Now, in a case like the above, implying the undoubted existence of inflammatory action of a most important membrane, the indication, according to the notions generally entertained, would be the abstraction of blood, if not from the arm, at least by the application of leeches over the seat of the disease; and we venture to say, that in a similar case such would be the practice adopted by a large proportion of medical men. But, according to the

theory of M. Beau, instead of curing the disease, the abstraction of a single drop of blood would only increase the evil, and ultimately lead to a fatal result. In peritonitis, and in the phlegmasia generally, the blood, according to Beau, is poor in red globules, and consequently rich in fibrine; in other words, the increase of the latter is in a direct ratio to the diminution of the former. It is not difficult, therefore, to understand his determined opposition to depletion, and other measures calculated to lower the vitality of the blood. He regards the excess of fibrine as the real pathological condition on which this disease depends; that is to say, he regards the fibrine as the phlogistic principle, and whatever tends to augment the fibrinous portion of the blood must of necessity increase the fever and feed the disease. Consonant with these views he considers anæmia, which is always characterized by diminution of the red globules of the blood, as one of the principal predisposing causes of the phlegmasia; and when this condition of body exists, exposure to cold and wet, to sudden change of temperature, or to any of the other exciting causes of inflammation, may be followed by an attack of acute peritonitis. Quinine being the sheet anchor of M. Beau, as we have shown, in the treatment of this disease, it will not be out of place here to indicate some of the leading rules which he lays down in reference to the manner in which it should be employed, and on the rigid observance of which the success will depend. It is necessary that a decided effect be produced on the system at once, and hence the earlier the quinine is exhibited after the malady has declared itself the better. But in every case he deems it advisable to premise the first dose of quinine with an emetic, to be followed up by a purgative enema. As soon as the stomach is prepared to retain the quinine, he gives the latter to the extent of eight grains every eighth hour, and this quantity of the salt must be continued for several days in succession. It is right, however, to observe that the dose must be proportioned to the sensibility of the patient; that is to say, it must be increased should the intoxication produced by it prove too feeble, and diminished in the event of its being too strong. M. Beau has never, in the course of his experience, had occasion to prescribe a larger dose than four grammes (60 grains) of the salt in twenty-four hours. Even when the inflammation of the peritoneum is limited to one spot, and when the malady has been to a certain extent overcome, it becomes imperative towards the second or third day to increase the dose of the salt to a small extent, as, the system becoming accustomed to it, the quinine in its original dose would not suffice to maintain the mastery over the disease. For the same reason the medicine must not be diminished too rapidly, nor discontinued too early. Beau states that he has seen cases in which, up to the eighteenth day of the disease, he could not suspend the medicine without such suspension being followed by a recurrence of the febrile symptoms. Should the stomach from excessive irritability reject the quinine (by no means an uncommon occurrence), it should again be administered in some other form, so that if one form does not suit another may. When, notwithstanding the form in which it is administered, the stomach obstinately refuses it, the quinine may be given in the form of enema, as experience has proved that its absorption readily takes place when given in this manner."

In another letter, in answer to some strictures by Dr. Handfield Jones, the same able correspondent continues:—

"While watching the progress of the case in which these remarks have originated, I was as incredulous of the efficacy of the quinine treatment as any one possibly could be, and it was only on remarking the rapid and decided impression made on the disease during the exhibition of the drug, and the ultimate recovery of the patient, that I was constrained to inquire whether the recovery was not a mere fortuitous occurrence, and independent altogether of the medication employed. My first inquiry was addressed to M. Beau's intelligent chef de clinique, and by him I was assured that a similar result, under the same circumstances, was not of uncommon occurrence; and that the powerful curative effects of large doses of quinine in peritonitis, as well as in inflammation of serous membranes generally, are by him too frequently observed to admit of any doubt on the point. This statement was besides amply corroborated by

M. Beau himself in his lecture, a few days afterwards, in which he stated that he had tried all the different systems of treatment vaunted in the management of peritonitis, and that he had found none so effectual as the exhibition of quinine in large and continued doses, regulated according to the tolerance of the patient and the violence of the malady. For several years past he has employed no other, either in cases connected with the puerperal condition, or apart from that state. With him it is no expectant treatment, but one in which he recognizes a powerful instrument for good, and in no case has he seen any ill effects follow it. It may be true, as Dr. Jones remarks, that all 'nerve toners are tissue irritants,' and that quinine given in what he styles the *asthenic* form of peritoneal inflammation might, from its property as a general tonic, prove injurious. This can only hold good, however, when the quinine is given in small doses. If it be given in doses of from one to two grains, or thereabouts, at moderately distant intervals, it produces a tonic influence, imparting vigor to the system generally; but the experience of late years has proved beyond a doubt, that in doses of eight or ten grains administered every eight hours, it produces a very powerful sedative influence on the entire nervous system, and especially on that portion of the ganglionic system which presides over the functions of the circulation and the production of caloric. In this respect, according to M. Briquet, who has experimented largely with the sulphate of quinine, it should be classified with opium and digitalis, both of which it resembles in its stupefying and sedative action.

"If this view of the physiological action of the sulphate of quinine in large doses be correct, then this medicine must prove, if not useful, at least not injurious, in the treatment of the *asthenic* form of peritonitis to which, if I have understood him aright, Dr. Jones considers it inapplicable. The object which in all cases of general inflammation should be steadily kept in view, is its subjugation by such means as are least likely to be followed by reaction. Now, we all know that when bleeding has been had recourse to, reaction almost invariably takes place, and the re-establishment of the inflammatory process, which for a moment may have been interrupted, reappears often in an aggravated form. If bleeding be an evil even in the *asthenic* form of inflammation, a doctrine which is held by not a few in the profession at the present day, how much more is the practice to be deprecated in those forms known as *asthenic*?—and it is especially as regards this latter type that the treatment pursued by M. Beau is deserving of attentive consideration. His theory is, that in the great majority of cases of peritonitis, there is found, prior to the outbreak of the disease, an impoverished condition of the blood, manifested in the diminution of its red globules, and in a proportionate increase of its fibrinous element; and that where such a condition of blood exists, there is a manifest tendency or predisposition to peritonitis, or to any of the other phlegmasias. A moderately strong exciting cause, such as exposure to cold, or undue fatigue, is under these circumstances calculated to call it into activity. The *æmic* condition is, so to speak, according to this practitioner, the almost invariable *cachet* of the phlegmasias. By way of more thoroughly understanding M. Beau, and for the purpose of testing the sincerity of his views, I, in the course of conversation with him, asked him whether he believed in the existence of the purely *asthenic* form of peritonitis. He replied, 'If such a form exist, it must be very rare, for I have seldom if ever met with it.' 'But,' I rejoined, 'we can imagine peritonitis occurring in the case of an individual strong, vigorous, and healthy; in other words, in a man whose blood is in a perfectly normal condition and abundant in quantity, as the consequence of a bayonet wound penetrating the peritoneal covering; would you not in such an instance expect to find the inflammation assuming the *asthenic* form?' 'In such a case,' he replied, 'I would hardly expect peritonitis at all, inasmuch as the person receiving such an injury would be in the very best possible condition to resist the inflammatory process: at all events he would not be so liable to it as an individual previously debilitated, and in whose case there is an excess of fibrine as compared with the normal quantity of this material in healthy blood. Let but such an accident happen to the latter, and peritonitis is almost sure to follow.' It would thus appear that, so far, M. Beau and Dr. Handfield Jones agree, inasmuch as the

latter, while attending to the conditions or grades of inflammation, admits that the athenic form is rare, and that the asthenic, together with a form intermediate between the two, are by far the most common. I have thus given as complete an *exposé* of M. Beau's views as the limits of a letter will admit of. With such views, it is hardly necessary to add that he considers venesection altogether out of the question in the treatment of peritonitis.

"The disease being one of debility, such a practice can but tend to increase it, and would really be tantamount to pouring oil on a fire for the purpose of putting it out. His sheet-anchor is the sulphate of quinine, with which the system of the patient must be invaded as near the commencement of the disease as possible. To effect this, from twenty to thirty grains of the drug must be administered in the twenty-four hours, taking care always to proportion it to the sensibility of the patient and the gravity of the symptoms. The state of 'quinism' or quinic intoxication, generally follows the second or third dose, and contemporaneous with this the heart's action becomes lowered, the heat and other febrile symptoms disappear, and the local pain ceases. M. Beau considers it essential that the patient be apprised of the very peculiar effects which the medicine is likely to produce, in order that he may not be alarmed in mistaking these for an aggravation of the original disease: the deafness and ringing in the ears being in some cases so great, that in the absence of this precaution, a bad moral effect might be the consequence. It sometimes happens that the local symptoms continue after the fever has disappeared, and the case then becomes one of a chronic kind. When this takes place, the treatment of M. Beau is exceedingly simple, consisting in the application to the abdomen of a series of blisters, the quinine, he believes, exercises no influence whatever over the local morbid products. During the stage of convalescence he endeavors to correct the anemic condition of the patient, not by the administration of iron, but by supplying the system with nutritious food. In closing my remarks on this subject, I may mention that M. Beau treats all cases of acute rheumatism which come under his care on the same principle, and by the same mediations."

ART. 48.—*On the treatment of Dysentery.*

By Mr. FORD, Surgeon to the Police Force at Melbourne.

(*Australian Medical Journal*, No. 15, July, 1859.)

"When first I came to this country (now more than ten years ago), and for a year or so afterwards, I was," says Mr. Ford, "badly perplexed as to the proper mode of treating dysentery. I had scarcely even seen it at home, although I had had considerable practice in the cotton-mill districts of Nottinghamshire, among the poor Irish gardeners of Fulham, and also in the iron-works of South Wales; and I found the same perplexity existed in those medical gentlemen's minds whom I consulted. It occurred to me that, as the disease was the result of excessive action of one (a small) portion of the intestines (the transverse, descending colon, and rectum), and probably total cessation of the peristaltic action of the rest, it would be advisable, if possible, to restore the unity of action throughout, and also to get rid of any irritating matter that might have caused the disease. To effect this purpose, I gave 3j magnesia, sulph., and 20 m. dilut. sulph. acid, every four hours; and at night, if the tenesmus is severe, I give, of blue pill, 4 gr., opium, 1 gr. I only allow a strictly farinaceous diet—no stimulants of any kind, the recumbent posture, with (in severe cases) the thighs elevated with a pillow, to relax the abdominal muscles, and a mustard poultice every twelve hours all over the abdomen. I invariably find that in the course of twenty-four to thirty six hours, the dejections become feculent, the blood ceases, and the tenesmus subsides. The frequency of the motions ceases when the irritating cause of the disease has passed, and although the salts are continued, the bowels do not act sometimes for twenty-four hours. I will illustrate this treatment by the following cases, both of medical men. The first occurred about six years ago. I was sent far to see a young man, a surgeon, who had just arrived in the colony, and was suffering from the then prevailing disease—dysentery. I found him much reduced, pass-

ing blood and mucus, suffering great pain, and worn out with the incessant tenesmus; he was dosing himself with chalk mixture, laudanum, &c. I asked him if he intended implicitly to obey my instructions, and make no inquiries? He promised. I put him upon the above treatment, and in about eight or ten days he was well enough to leave the house. The next case I shall quote, I treated last September. On the occasion of our last medical dinner, I was sent for to see a Dr. C—, from Maryborough. I left immediately after the removal of the cloth, and found this gentleman in bed at an hotel, in (I may say) a most subject state of misery. He told me that he had had dysentery for ten months, on and off; that he had tried everything the pharmacopœia could furnish, and that the only thing now that he could obtain any relief from was opium, in some shape or other. He was then partly under its influence. I made the same stipulation with him as in the previous case, put him upon the same treatment precisely, and in a fortnight he was, I may say, quite well. He returned to his practice (an extensive one) in about three weeks from the commencement of my attendance, and has, I believe, been in perfect health since. I recommended this gentleman to take the nitro-hydrochloric acid for some time. I quote these because, being gentlemen of our own profession, they will probably carry more weight with them; but I append a list of cases of pure dysentery treated by me in my capacity of Surgeon to the Police Force. You will perceive that they extend over a period of seven years, and it affords me the greatest satisfaction in stating, that during the whole of that period I have not lost one adult case of dysentery; and I feel convinced, that if the treatment is carried out with boldness and confidence, the same will nearly always be the result. There is nothing magical in the effects of the treatment; on the contrary, it requires patience and a certain amount of endurance on the part of the patient. I may state, that the average duration of each case I found to be nine days.

"I have not had time to extend this paper further, or I should gladly have entered upon other matters; but I may state, that I pursue a somewhat similar treatment with infants, a more detailed account of which I shall at some future occasion be happy to furnish."

ART. 49.—On the treatment of certain abdominal inflammations by copious injections of warm water. By Dr. EISENMANN.

(*Bull. de Thérap.*, t. lv. p. 542, and *Gaz. Méd.*, May 27, 1859.)

Dr. Eisenmann's plan is to inject about three or four quarts of water at blood heat. The first injection, he tells us, returns in a short time, and brings with it a considerable quantity of fecal matter. The second injection, which is to be given immediately after the return of the first, is almost invariably retained without difficulty.

Dr. Eisenmann believes that by this plan he has cut short, often in a very few hours, a dozen attacks of peri-hepatitis, to which he himself is very liable; and he mentions cases of nephritis, peritonitis, abdominal typhus, violent palpitation, &c., in which he has seen a similar rapid change for the better in others. He believes also that these injections will prove of great value in the treatment of cholera. Dr. Eisenmann does not appear to be aware of the satisfactory results obtained by Mr. Hare from copious injections of warm water in the treatment of dysentery in India. ('Abstract,' XX., p. 253.)

ART. 50.—On the Character of Green and Metanal Discharges from the Bowels. By Dr. S. G. ARMOR.

(*North American Med.-Chir. Rev.*, Sept., 1859.)

In this paper Dr. Armor collects a good deal of evidence which serves to show that green discharges from the bowels do not indicate, as was once supposed, increased or perverted hepatic secretion. He shows that the characteristic color of the stools depends upon the presence of the coloring matter of the bile, and not upon the bile proper—the bile proper being absorbed on its

way from the liver to the rectum; and that the particular putridity or sourness of the green discharges of childhood are just what are to be expected from the absence of bile in the intestine—for when no bile flows into the intestine, and an animal is fed on *flesh*, rapid decomposition and abundant generation of fetid gases is the result; but, when in the same case, the animal is fed on bread or starchy substances, the feces and abdominal gases are sour rather than putrid. In ordinary cases Dr. Armor looks upon an hyperæmic state of the mucous membrane as an essential fact in the formation of green discharges from the bowels, and upon altered blood, mixed with mucus and other secretions, as the coloring matter. In the green stools from taking mercury or from drinking the Carlsbad waters, the principal cause is allowed to be the presence of sulphuret of iron or of sulphide of mercury, respectively.

ART. 51.—*Intestinal Infusory Animalcules in Man.*

By Dr. MALMSTEN, of Stockholm.

(*Archiv f. Pathol. Anat.*, t. xii., 1858; and *Gaz. Hebd. de Méd. et Chir.*, June 12, 1859.)

M. Davanie has already called attention to the existence of these animalcules in the stools of certain persons suffering from cholera, typhoid fever, and ordinary diarrhoea. These animalcules were of the genus *Cercomonas*, and, like those described by Dr. Malmsten, they died very shortly after being expelled from the intestine, a fact which M. Davanie is disposed to refer to the cooling of the voided matter. These animalcules would appear to differ altogether from the animalcules which are developed in decomposing animal matters, for if they were not, they would not die upon being expelled from the bowels.

Dr. Malmsten's cases are two in number:—

CASE 1.—A sailor, æt. 38, suffering from diarrhoea, admitted into the Seraaphim Hospital, 22d March, 1856. Two years previously he had suffered from cholera, and in the interval he had many bouts of indigestion and of diarrhoea alternately, with constipation. When admitted, any meal was almost immediately followed by a copious stool, mixed with much indigested food. He suffered also, from frequent tenesmus, with discharges of sanguinolent mucus. All the while his appetite was very good, and it was only by frequent and copious eating that he could quiet the feeling of emptiness caused by the frequent motions. There was no fever, and no tenderness of the abdomen in any part. Within the rectum there was found immediately within the anus an ulcer, secreting puriform sanies, with solid bases and elevated edges, and, on examining this sanies with the microscope, it was found to abound with animalcule of the genus *Paramœcia*—Dr. Malmsten calls them *Paramœcium coli*. Similar animalcules were also found in incalculable numbers in the motions immediately after their evacuation, and also in the mucus which was brought away on a speculum from high up the gut. The patient remained in hospital until August 28, and, under the treatment adopted (principally injections of weak hydrochloric acid, the disposition to diarrhoea passed off, and the number of animalcule in the motions diminished. Six months later, also, the improvement continued, and the numbers of the animalcule were still further diminished.

CASE 2.—A woman, æt. 35, suffering from the same state of intestinal disturbance as in the last case, with this addition—that the stools contained very considerable quantities of blood, and that the abdomen was very tender in the course of the descending colon. Animalcules in myriads were present in the stools. Death happened eventually from marasmus. On post-mortem examination numerous gangrenous ulcers were found in the large intestine, and many animalcules were found in the purulent matter belonging to these ulcers, but the animalcules were found in greatest number upon those parts of the intestine where the mucous membrane and mucous secretion were healthy, and especially in the cæcum and its appendix, which were perfectly healthy. No such animalcule was to be met with above the ileo-cæcal valve.

ART. 52.—*The Treatment of Obstinate Constipation by Electricity.*
By Dr. CLEMENS.

(*Deutsche Klinik*, No. 43 and 45, 1848.)

Dr. Clemens informs us that he has cured radically several cases of obstinate constipation by applying the poles of an inductive apparatus to different parts of the abdomen. In some instances, the shocks were passed across the abdomen from side to side; in others, along the course of the colon; in others, again, from the umbilicus through to the lumbar region of the spinal cord. This plan of treatment, which requires to be pursued for several months, appears (so thinks Dr. Clemens) to be far preferable to the frequent use of purgatives. The cases referred to are of course cases where the constipation did not depend upon any organic obstruction; at the same time, reference is made to a case of permanent contraction of the bowel, in which great relief was obtained from the careful use of this mode of treatment.

ART. 53.—*Chronic Ulcer of the stomach, with Gangrene of the spleen and lung.*
By Dr. LEES, Physician to the Meath Hospital, Dublin.

(*Dublin Hospital Gazette*, May 1, 1859.)

CASE.—A woman, about 50 years of age, was admitted into the Meath Hospital, on the 1st of February, suffering under severe pain, which she referred to the region of the epigastrium. She was of evidently delicate habit, appeared much worn and emaciated, and stated that she had been married to a soldier in a marching regiment, had accompanied him on service to England, and afterwards to the West Indies, where she had resided for a long period, enjoyed good health, and had borne nine children. She was first attacked about three years ago with the primary symptoms of stomach derangement, when she experienced slight attacks of nausea and sickness after meals, and used to have vomiting of clear fluid. In some time after, the attacks of sickness became more severe, and she now began to vomit her food; this continued for three years, her sufferings going on increasing, though she applied for dispensary relief, and tried several remedies. About twelve months ago she entered Saint Vincent's Hospital, under the care of Dr. O'Doherty, who kindly furnished some notes of the case. When she came under his care she complained of intense pain in the pyloric region, and had frequent and severe vomiting after food. The pain was not increased on pressure; neither could any trace of pyloric tumor be detected by the most careful examination. Dr. O'Doherty's diagnosis at that time was that the woman had either malignant disease of the stomach, or simple ulceration of that viscus. After some time in Saint Vincent's Hospital, she obtained comparative relief from the treatment adopted, and went out. However, the symptoms returned again with renewed acerbity, acute pain in the stomach, especially after swallowing food, vomiting, &c.; and thus she continued until about a week previous to her admission into the Meath Hospital, when (she said) she felt something giving way in her inside; this, and the acute pain in the epigastrium, induced her to come into hospital. When I first saw her, she had no vomiting, but there was great pain and tenderness in the epigastrium; the recti muscles were tense and hard; no trace of tumor was perceptible, and she had no diarrhoea; but the pulse was 120, and never came down throughout the whole progress of the case. Leeches were applied to the epigastrium, and calomel and opium, in small doses, were given internally. This treatment gave relief from pain; and nutritious diet, with wine, was now given to her; but on the 11th inst. she first began to complain of cough, and on examination the base of the left lung was found dull on percussion; loud bronchial respiration was plainly audible, but not the least crepitus could be detected, though examined for repeatedly and carefully.

On the 14th of the month another formidable symptom supervened: the patient's breath began to exhale the peculiar nauseating and intolerable odor characterizing gangrene of the lung. Her pulse continued at 120; and at

length she died on Thursday, 3d of March, never having vomited blood, or any dark substance, at any period of her illness.

Post-mortem.—On opening the abdominal cavity, the first appearance remarkable was vascularity of the omentum. On raising the liver, its posterior surface was found adherent to the anterior surface of the stomach. The adhesion was so firm, that in trying to separate the viscera the parts tore, revealing the remains of an ulcer with thickened edges, situated partly on the anterior, and partly on the posterior, surface of the stomach. The edges of the ulcerated surfaces were well defined and greatly thickened. The spleen was found reduced to a pulpy mass, of a blackish or dark chocolate color, disorganized, and intolerably fetid. The diaphragm was perforated by ulceration, and a large opening resulted, through which could be perceived the base of the lung (the left) hollowed out into a large gangrenous cavity; and the whole of the lower lobe of the lung in a disorganized and broken-up condition; its upper portion was hepatized. The other viscera were healthy. There was no evidence of cancer in any part of the system.

ART. 54.—*Can the Garden Slug live in the human stomach?*

By Mr. DAVID DICKMAN.

(*Lancet*, Oct. 1, 1859.)

CASE.—Sarah Ann C—, æt. 12, had, for the last two months, complained of feeling sick at times, particularly after meals. On the 5th of August last, she vomited up a large garden slug, which was alive and very active. On the 6th she brought up two, both alive; and on the night of the 7th she was seized with violent vomiting and relaxation of the bowels, and threw up five more, of various sizes, the smallest two inches long, and all alive.

On the morning of the 8th, when Mr. Dickman first saw her, vomiting and purging had ceased, and she complained of great pain in the left region of the stomach, and headache. Opiate powders were given, which relieved her in every way till the afternoon of the 9th, when she felt something crawling up her throat. This sensation brought on the most violent efforts of vomiting to expel what she felt at the upper part of her throat, and she frequently introduced her fingers to seize what she felt, but did not succeed. Mr. Dickman happened to call just when all this suffering was beginning to subside, at which time the sensation was felt lower—about half way between the mouth and the stomach. As expulsion by vomiting seemed hopeless, it occurred to the author that ammonia and camphor might destroy the creature, and that the digestive powers of the stomach would do the rest when the animal was dead. The dose was repeated every four hours for two days, and afterwards three times a day for two days more, with entire success. An aperient powder was given every night. After the first dose of the ammonia and camphor, all sensation of movement ceased, and she appeared as well as ever she was.

During the summer she had gone frequently into the garden and eaten freely of its produce, especially of lettuces, of which she was very fond. It appears that a family of very young slugs had been feeding on the lettuces, which the child had swallowed with very little mastication, and the gastric juice not being strong enough to act on them when alive, they fed and grew in their new habitation to their usual dimensions. During the time they must have been in the stomach, she was fonder than ever of vegetables and fruits, and would put aside the meat on her plate, and eat the vegetables only.

The three slugs that came up first were not preserved; but the five others have been kept alive, and fed on vegetables, which they preferred being cooked, having at first refused to eat them raw. They are now fed on raw vegetables.

Ant. 55.—Ulceration of the Duodenum causing death by erosion of the Pyloric Artery. By Dr. RANKING, Physician to the Norfolk and Norwich Hospitals.

(*British Med. Journal*, Sept. 3, 1859)

The points worthy of remark in this case are the comparative rarity of the presence of an isolated ulcer in the duodenum, and the fortuitous accident of its occurring over a vessel of so much importance as the pyloric artery. It is easy to see that the actual giving way of the vessel took place in the train, on the patient's journey home; the effluxion of blood into the bowels fully accounting for his sudden faintness. The passing of blood immediately on his arrival at home made the history complete.

The case also affords another instance of the difficulty, if not impossibility, of diagnosing, in the early stages, mere functional dyspepsia from the symptoms of organic change.

Case.—In May of last year I was first consulted by a gentleman, aged about 50, residing in Lowestoft. He was an emaciated man, with a sallow complexion, but enjoying a fair amount of physical power. His only complaint was one which had tormented him for years, viz., pain and flatulence after eating, which would be relieved by carbonate of soda, which he was in the habit of taking largely, with the effect of eructation of gas, followed by immediate relief.

Seeing nothing more formidable in these symptoms than irritative dyspepsia, for which a mere palliative treatment had been adopted rather than any curative measures, I prescribed a somewhat inelegant, but in most such cases a very efficient, mixture of bismuth and nitro-hydrochloric acid, in infusion of calumba, with the result of very considerable amendment. The last occasion on which I saw the patient at this time was that of a long country walk, which he accomplished with less fatigue than myself.

I lost sight of him from this period till the 2d of September last, when he called upon me in a very much deteriorated condition. His history of himself was that he had gained much in general health and strength for some time after I had seen him at Lowestoft; but relapsing, he had placed himself under the care of my friend, Mr. Worthington, from whom I learned that he had been seized with great gastric derangement, accompanied by slight jaundice and frequent bilious vomiting, with epigastric pain, from which, however, he rallied sufficiently to travel into a distant county. But from this time he appears never to have regained his strength, and it was this fact which induced him to see me on the day last referred to.

At this time he had manifestly lost ground in appearance and strength; but still his complaints were solely such as might be referred to long-continued functional dyspepsia, and such I should still have considered it to be had not his peculiarly sallow complexion led me to apprehend some malignant degeneration. I wrote to Mr. Worthington on the subject, without any misgiving as to immediate danger; but next morning I received a telegram to visit him by the next train, as he was in imminent peril.

The account I now obtained from him was, that after leaving my house he had taken a light luncheon, and returned to Lowestoft by an evening train; that on arriving at home he was observed to look extremely pallid and faint, and, on going to the water-closet, passed, *per anum*, a large quantity of blood, after which he became collapsed and apparently in a sinking state.

On meeting Mr. Worthington, and Mr. De Morgan, of London, who happened to be visiting Lowestoft, we found the patient in bed, blanched to an extraordinary degree, with jaundition, and all the well-known effects of severe loss of blood. No further action of the bowels had at this time occurred; but he had lost his epigastric pain entirely, and was himself assured that he had derived benefit from the spontaneous loss of blood.

A most careful examination was made of the abdominal region, and we came to the conclusion that there was no abdominal tenderness, no pyloric tumor, and, as far as we could determine microscopically, from the examination of some grumous matter ejected from the stomach, that there was no evidence of cancerous degeneration of that organ. The patient was clearly at this time

laboring under the effects of loss of blood, and the question discussed was whether the loss of blood was due to simple portal obstruction, or to ulceration of the intestines. The only point we could feel any conviction upon was that there was no evidence of cancerous degeneration. Under these circumstances our efforts were limited to the endeavor to check the intestinal hemorrhage, and to maintain the vital powers under the loss already sustained.

He, however, derived little or no benefit from the medicines prescribed; but he lay continuously in a state of extreme anemia, with nausea, violent action of the heart, loud systolic *bruit*, and other signs of serious loss of the vital fluid. I met Mr. Worthington three or four times after this, but nothing we could devise succeeded in rallying to an extent which could be considered satisfactory. The result was that, after several transient attacks of fainting, the patient was seized with one of more than common severity, and before Mr. Worthington, who was hastily summoned, could arrive, he expired.

The *post-mortem* examination fully explained the inefficacy of treatment, and the inevitably fatal termination. The body was exsanguine to the last degree, and emaciated. The lungs, heart, liver, and abdominal viscera were bloodless; but otherwise healthy to all appearance. The stomach was thin, and contained some grumous fluid, but there was no cancerous degeneration, or other organic change. The explanation of the symptoms was found in the duodenum, in the presence of a rounded ulceration just below the pyloric orifice, in which was an eroded opening into the pyloric artery, large enough readily to admit a large probe.

ART. 56.—*On the diagnosis of diseases of the Pancreas.* By Dr. OPPOLZER.

(*Med. Neugkeiten*, April, 1859, and *North Am. Med.-Chir. Rev.*, July, 1859.)

The most important diseases of the pancreas, evinced by anatomical changes, are scirrhus, atrophy, hypertrophy, acute and chronic inflammation. *Scirrhus of the pancreas* is much rarer than *scirrhus around the pancreas* (*scirrhus circa pancreatum*): its diagnosis is therefore not easily established, and this difficulty is increased by the circumstance that the evacuation of feces containing fat is not peculiar to diseases of the pancreas, as was formerly believed, but may also occur in affections of the mucous membrane of the duodenum, and that the digestion of amylineous matter may be hindered without disease of the pancreas being the cause of it.

Atrophy of the pancreas has recently attracted much attention by its occurrence in diabetic patients, and by Bouchardat ascribing to these two diseases the relation of cause and effect. It is proved that atrophy of the pancreas may be also produced by impediments in the secretory duct, or at its mouth, such as obstruction of the duct of Wirsung by foreign bodies, further by calculi, cancer, and the cicatrix of a perforating ulcer near the diverticulum Vateri. It is, however, impossible to diagnose atrophy of the pancreas from the symptoms which accompany the disease, such as pain in the region of the pancreas, fatty stools, and emaciation.

Enlargement of the pancreas may take place in consequence of the deposit of fatty matter, whereby the acini become compressed, and the whole organ is converted into a mass of fat. In this affection also, no characteristic symptoms are known, not considering that it is quite impossible to diagnose a lipoma within the peritoneum.

The occurrence of *acute inflammation* of the pancreas has been wholly denied. Oppolzer himself, however, saw the organ in one case swollen, reddened, and with exudation between the acini, as in parotitis. The patient suffered from oppressive pain in the pit of the stomach, and tried to obtain relief from it by taking brandy and pepper. This was followed by vomiting and increase of the pain. The vomited matter consisted of mucus and bile. The patient had a violent fever, very frequent pulse, and cold extremities; his face was shrunken, and he suffered from obstinate constipation. There was no blood vomited; and the case was diagnosed as one of perforating ulcer of the posterior wall of the stomach. On the third day after being admitted into the hospital, the patient died; and the *post-mortem* examination proved the stomach to be

healthy. Around the pancreas, however, and between the layers of the mesentery, a large effusion of blood was found; the pancreas itself was enlarged to double its size, of a dark-red color, and contained an exudation colored with blood between the acini.

Chronic inflammation of the pancreas was formerly diagnosticated very frequently; but it was usually confounded with perforating ulcers of the stomach. Chronic inflammation of the pancreas may, however, coexist with gastric ulcer, or with ulcer of the duodenum, and is then a secondary affection, the ulcer of the stomach or of the duodenum having formed adhesions with the pancreas. Professor Oppolzer has observed a case of this kind. The patient, a girl, had suffered from a perforating ulcer of the duodenum; and, on post mortem examination, adhesions between the ulcer and the pancreas were found.

For some time, it was considered dangerous to suppress salivation produced by a mercurial treatment, as it was thought that such a measure would give rise to an undue secretion of the pancreatic fluid and to diarrhoea. Nothing, however, is known concerning the sympathy between the salivary glands of the mouth and the pancreas, as to whether diseases of the pancreas usually cause diarrhoea.

In regard, finally, to determining the position of the pancreas by percussion, it would not be impossible to feel it in the abdominal cavity, if the abdominal parietes were relaxed, and under normal conditions; but, for estimating the size of the pancreas, and for drawing conclusions in regard to its diseases, there is exceedingly little to be gained by percussion.

ART. 57.—Ascites terminating semi-favorably by the formation of Peritoneal Fistula. By Dr. JOHN O. BRONROV.

(*American Medical Monthly*, July, 1859.)

In this case, the ascites was complicated with abscess in the abdominal parietes; and the formation of the fistula resulted from the sloughing of a portion of the floor of this abscess. The fistula remained open a year after its formation; and all the time there appears to have been free escape of fluid from the peritoneum, and often free admission of air into this cavity.

CASE.—On Wednesday evening, September 17th, 1856, I was called to see Margaret B—, æt. 44, the mother of several children, and eight years a widow. She was a small, delicate woman, of nervous temperament, and weak mental ability. Lying upon her bed, in a state bordering on delirium, with a countenance expressive of great anxiety, and apparently in severe pain, she presented the appearance of a woman in the parturient condition, suffering from some complication, inasmuch as her abdomen was eminently enlarged.

Upon making a proper examination, I found her abdominal enlargement was owing to ascites and an abscess. Her bowels had not been evacuated for upwards of two weeks; but, as she did not at any time enjoy this necessity of nature oftener than once in a week or ten days, this should not be considered extreme, especially as she afterwards assured me she had allowed three weeks and even a month to elapse between her evacuations, without experiencing any discomfort. Nevertheless, to unload her bowels was an evident indication in the treatment to be pursued, an indication which received early attention in the administration of an enema of a solution of soap and salt, with molasses, to be repeated until the bowels were thoroughly emptied.

Upon making an examination of the abscess, I found it to be subcutaneous, about the size of the fetal head at term, very prominent, and exhibiting on its anterior superior face seven superficial square inches of the integument in a state of gangrene.

The situation of this abscess was just below the umbilicus, and a little to the left of the median line, the circumscribed induration being irregular, reaching entirely to the left ilium, and falling short of the right by more than two inches. This abscess appeared about three weeks previously, and had been increasing gradually, giving no uneasiness, and exciting no apprehension up to the time of her summons to me, thinking, as she did, that it would take the course of a similar one which appeared about ten years before, in the same

situation, matured, and was evacuated spontaneously. Through the centre of the gangrenous portion, which presented the most favorable point for evacuation, I passed a trocar, to ascertain the character of the contents. Through the cannula flowed a greenish-yellow fluid, which seemed to be broken-down pus, containing many flocculi, and of very fetid odor. Nearly two pints of this fluid were collected, being evacuated by incision. The formerly prominent anterior wall of the abscess collapsed, and, resting upon the muscles beneath, presented a concavity equal to the previous convexity. The patient's pulse, which, when first noticed, numbered 130 per minute, immediately fell to 123, at which point it continued until the injection produced its effect, when it received a second diminution, and counted but 118, and had much improved in character, being less weak and less irritable.

Having prescribed for external use a lotion of the chloride of soda and a stimulating poultice composed of pulv. cinchona, two parts; pulv. zingiberis, pulv. rad. althææ, each one part; and, for internal administration, wine whey and a pill containing two grains of the sulphate of quinine, and a tenth of a grain of the sulphate of morphia, to be given every two hours. I left, to return on the following day.

On Thursday, the 18th, eighteen hours from the first visit, the patient had slept a few hours, and was much more quiet. The pulse had fallen to 112. The gangrene was evidently extending. I ordered a continuance of the previous prescriptions, with additional wine.

On Friday, the 19th, the patient's condition was much the same, with a slight diminution in the frequency of the pulse, it being 108. The gangrenous action had encroached upon the sound tissues more than one eighth of an inch in its whole circumference, thus adding about two inches to the already extensively destroyed surface.

The previous prescriptions were ordered to be continued, adding tincture of camphor to the poultice, and milk punch to be substituted for the wine whey.

On Saturday, the 20th, I found a great improvement in the patient. Her pulse was but 87. The gangrene was stayed, and at points suppuration had commenced. A continuance of the treatment was ordered.

On Sunday, the 21st, I was gratified to find the slough nearly separated, and a healthy action well established.

The pulse had diminished in frequency, and gained materially in strength. It numbered but 84 per minute.

On Monday, the 22d, the slough entirely separated, leaving a healthy granulating surface of more than nine superficial square inches in extent.

For two days the patient continued to improve in every respect and the healing action progressed rapidly under the use of a very dilute lotion of the chloride of soda; the poultices having been discontinued shortly after the separation of the slough.

On the 24th, the interval between the administration of the pills was lengthened to four hours. No change was made in other respects.

On Friday, the 26th, the patient's pulse had come down to 78, and improved in strength and character.

On the 27th, ten days from my first visit, while dressing the ulcer, I noticed a gangrenous point, about one inch and a quarter below the umbilicus, the size of a small pea. It was not superficial only, but deep, and I was at a loss to understand it. I increased the strength of the lotion, however, and hoped for the best.

On the following day the same condition existed, and although this local manifestation portended evil, the general symptoms were flattering. The patient continued to improve. The prescription of the 26th produced most satisfactory results.

On the 29th, I was greatly surprised to find that the slough had separated, leaving a communication into the peritoneal cavity, through which had escaped the ascitic fluid, bathing the patient from the mamma to the pubis, and wetting the bedding above, around, and beneath her. It was impossible to estimate the quantity of fluid, except from pre-existing appearance: judging in this wise, there must have been at least six quarts.

The fistula thus formed remained patulous, and the effusion continued to flow, passing away as rapidly as transuded.

The healing of the ulcer was not checked, however, and a cutaneous covering rapidly formed until it reached the fistula, a closure of which was not easy, if desirable. Various attempts were made, however, by means of astringents, stimulants, and compresses, but all to no purpose.

The effusion continued, though in diminished quantity, and by an occasional use of the podophyllin pills the action of the bowels was made regular.

Three weeks from her summons to me she was up and attending to her household duties, having in that short space of time recovered her strength and attained to such a degree of health as she had not enjoyed for a long period.

For four or five months the patient was under my observation, and though making use of various remedies to counteract the transudation, it still continued. Diuretics, cathartics, and deobstruents, individually and combined, served but temporarily to check the effusion. There seemed to be no relief from this irksome malady. The poor woman was obliged to wear some absorbing material continually.

The question of closing this peritoneal fistula was often presented and often met in the negative, inasmuch as it did not seem proper to dam up the stream while the fountain continued to flow.

For a period of more than a year the patient was seen from time to time, and the effusion continued unabated. Her general health improved, however, and became better, indeed, than it had been for several years.

The case was seen respectively by Professor Henry G. Cox, Dr. W. F. Holcomb, Dr. C. A. Budd, and Professor E. R. Peaslee, all of whom expressed themselves as to its being unique. One circumstance connected with the case marked it as peculiar. It was this. By certain movements, air was received into and expelled from the peritoneal cavity, producing at no time and in no way any unpleasant results. This peculiarity I think noteworthy, suggesting as it does certain practical ideas.

ART. 58.—*Notes on the management of Abscess of the Liver.*

By Dr. JOHN JACKSON.

(*Lancet*, Aug. 13, 1859.)

There is sound sense in the practice inculcated in these notes, as the following quotations will sufficiently show.

"When," says Dr. Jackson, "an abscess in the liver is once formed, and there are distinct evidences of suppuration, the time for bleeding, mercurials, and other antiphlegistic remedies has passed. Nothing is more hazardous to the patient now than an interference with the plan which nature is setting up for the ultimate destination of the abscess. Danger would be incurred by any direct attempt to obstruct or direct what seems to be the settled design of nature, which sometimes reverts the idle interference of art when it comes too late.

"In Europeans resident in Bengal, it is not often that abscess makes its way towards the anterior walls of the abdomen, or that adhesions take place which lead to pointing and the bursting of the abscess, like that in common phlegmon on the surface of the body. The abscess is generally of a considerable size; it occupies the central part of the organ; is deep-seated; and shows but little tendency towards the situation of the abdominal parietes, which no doubt is the best course for it to take, if it is to be treated by artificial means.

"But in the natives of India there is a much greater proportion of superficial abscesses that point toward the abdominal muscles; and as in them the febrile action is much less severe, the abscesses are more limited in extent, and can therefore be more beneficially treated by artificial means than in the case with the Europeans. In nine cases of the disease in natives, under my care in the year 1853, in which there was operation by puncture through the abdominal muscles, eight were successful. In Europeans, a successful issue of abscess of the liver

consequent upon operation is extremely rare, and my experience with respect to them disposes me to object, most generally, to operation in their case.

"There are many ways which nature adopts for the discharge of an hepatic abscess; and the provisions which are so admirably made for the security of the patient form one of the most striking instances of protective power in the human economy. It is not often that an abscess breaks down suddenly and empties itself into the cavity of the abdomen, or into the thorax, without the various preparatory stages of adhesion, effusion of coagulable lymph, or other circumstances or conditions most favorable to the safety of the discharge; and when eventually the abscess does give way, it most generally occurs after there has been an abundant secretion of pus formed, which, by continued pressure and progressive absorption of the outer walls of the abscess, reduces them so much, that there is not strength in them to withstand the increasing amount of pus secreted and the distension caused, and the abscess bursts.

"When an abscess forms in the convex portion of the liver, and adhesion is taking place between that organ and the diaphragm, as well as between the upper serous surface of the diaphragm and the pleura of the lung, any further administration of mercurials, or antiphlogistic treatment, while no check can be put to the disease, would at once interfere with the protective power which nature is setting up. The administration of mercurials prevents the formation of fibrin and removes it from the blood, as well as absorbs what has already been secreted; and, whilst ineffectual in preventing the further formation of pus and limiting the abscess, it lowers the system, and subsequently prevents a more favorable termination of the disease. So that no plan is more prejudicial to the welfare of the patient than a continuance of a mercurial course after an abscess is once formed.

"At the commencement of the treatment the practitioner is anxious to witness the specific influence of the mercurial, and, after full venesection in the stout, healthy European, he pushes it on, in full hopes of obtaining the desired salivation. But it is necessary for him to bear in mind, as the disease goes on, that if a full and fair trial of the mineral has been given, and no specific effect produced, the further continuance of it is noxious, and interferes with the very means which nature may be setting up for a cure. Salivation (as the specific effect of the mercurial) so very rarely happens after an abscess has formed (and never, that I have seen, in the acute stage), and the evidence of its action is so generally a proof that no suppuration has taken place, that it is scarcely a matter of surprise that the use of the mineral should be carried so as to produce its effects, if possible, and thus settle all doubts in the mind of the medical attendant as to the actual condition of the patient.

"It might be supposed that when an organ of such size and importance as the liver has become so affected as to cause abscess, there would at once occur some one sign as pathognomonic of the event. The catalogue of symptoms, when all are present, must leave no room for doubt. But it frequently happens that some one or other of the disturbing causes will interfere with the diagnosis, and thus render evidence doubtful and imperfect. I have known of instances where the symptoms were so obscure, that the existence of liver abscess was not suspected till autopsy proved it; and I have frequently heard the remark of an able and experienced surgeon, that he believed that no one who had been many years in India, and had been subjected to any disease of the liver or to dysentery, could feel perfectly sure that he had not an abscess in his liver."

"Long experience has convinced me that there is no course which hepatic abscess, when once formed, can take, that holds out such good prospects of recovery by natural means as when the channel for the discharge is through the right lung; and although the abscess may be opened externally by the aid of the knife, either through the abdominal parietes or through the ribs, or may open themselves by ulceration into the stomach or bowel, there is not the least doubt that the passage through the lungs is the most favorable course for the abscess to take."

* This is my own experience, and I state it thus strongly from being aware that it differs from that of others of high authority, who hold that the passage through the bowels is the safer channel.

"It is very necessary that every medical man should be aware of this fact, so that he may not be tempted to interfere with the natural process, by depletion or blisters, or other means, to remove the irritating cough which sometimes shows itself when the abscess is making its way through the diaphragm, and calling into action the pleuritic surface of the lung previous to adhesion. Mild measures and soothing remedies are the only plan of treatment which should be adopted, and nature is to be aided by the best means in our power to effect the objects which she has in view. The patients that have come under my eye who have recovered from abscess of the liver making its way through the right lung are very numerous. Several of them are now in England; others are still in India, where they are carrying on their duties without any appearance of ill health. In the recovery, however, of such patients, and during the early period of the discharge of the abscess, whilst the chasm in the liver is unclosed, and no granulations formed, and the passage of the lung free, much discomfort may arise from air passing down into the hepatic cavity, and great distress be induced, until, by change of position, bandages, and other supports, relief be afforded, and the air gradually expelled. When the abscess is very large, and the opening through the lung extensive, this will occur; but the cases are not common, and the plan adopted by nature is the best calculated to prevent the admission of air into the opened cavity, or giving rise to long-continued and purulent offensive discharge.

"In artificial openings, whether between the ribs or through the parietes of the abdomen, the mode of opening the abscess is of much importance. If the opening is made large, and a tent inserted, under the notion that there will be a better escape for the matter, air will be admitted, which will render the discharge offensive; there will be a discharge of bile, for the biliary ducts are soon broken down, and the patient will be unable to recover his strength under any plan of treatment, but will sink under the continued exhausting discharge. But when the opening is small, and the matter allowed to exude without any amount of pressure, the opening closed by adhesive plaster, strong tincture of iodine painted over the tumor, the body carefully bandaged with compresses, and the patient supported with good diet, porter, and wine, the kidneys being gently acted upon with hydriodate of potass with cinchona, there will be great reason to look for a happy result."

ART. 59.—Permanent Collapse of an Hydatid Cyst of the Liver after Puncture.
By Dr. W. BRID, Senior Physician to the Bristol Infirmary.

(*Brit. Med. Journal*, April 2, 1869.)

CASE.—Isaac Thomas, æt. 35, a collier by occupation, a man of spare habit and faded appearance, was admitted into the Bristol Infirmary on June 2d, 1858, on account of a painful swelling in his right side. He had enjoyed pretty good health until about two years before admission, when he began to suffer pain in the region of the liver, and soon after perceived an enlargement there. This enlargement had gone on gradually increasing until it attained the limits it presented when he came to the hospital. He had meanwhile suffered a good deal in general health, and had lost much flesh and strength. There had never been any jaundice. On examination, a large tumor was found in the right hypochondrium, extending from the margin of the ribs to about two inches below the umbilicus, and describing in its outline, as far as it could be traced, the segment of a circle, of which this might be taken as the radius. The tumor was not tender on pressure, but had been at various times the seat of severe pain. The only other circumstance which it seems important to mention is, that the patient had for some months past been suffering from chronic catarrh, and that he presented the characteristic indications of pretty extensive emphysema of the lungs.

From the history of the case, and from the even globular character of the tumor, I came at once to the conclusion that it was an hydatid tumor. I may add, that I failed, however, to satisfy myself of the occurrence of the peculiar fremitus which percussion is said to elicit from tumors of this particular kind.

On July 18th, in order to verify the diagnosis, the tumor was punctured

with a grooved needle by my colleague, Mr. Prichard, and about one ounce of fluid was withdrawn from it. This fluid was perfectly limpid when drawn, but, on being allowed to stand, threw down a slight sediment, which, on microscopic examination, was found to consist entirely of amorphous granular matter. No echinococcus-hooks could be discovered in it. The most important character I have reserved for the last. The fluid did not contain even a trace of albumen. I looked upon the entire absence of this product as decisive in confirmation of the diagnosis.

Of all the varieties of cysts of which the human body may become the seat, the hydatid cyst is, as far as I know, the only one (of any large size, at least) which yields a limpid fluid, entirely devoid of albumen. The fact is not only peculiar (as I believe) to this kind of cyst, but, if I mistake not, bears a physiological relation to the parasite of which it is the nidus. In the thickly peopled colony which inhabits an hydatid cyst, a material had lain for indefinite periods in what may be called the *faecal* state, and without causing the slightest injury to the persons who were the unconscious bearers of them.

The problem for the physician is, if possible, to compass the death of the brood of echinococci without danger to the subject infested with them.

To kill the parasite, the simplest measure is to withdraw, by tapping, the fluid in which they live. Why it should be is not at all clear; but experience has shown that, in the great majority of cases, the sac, once emptied of its fluid, never fills again; and that the death of the parasites (from want of nourishment, I presume) is the result.

Unfortunately, this operation exposes the patient to two very great dangers. In tapping an hydatid cyst of the liver there is, on the one hand, great danger of the fluid escaping into the peritoneum, and setting up inflammation there; and on the other, especially if care be not taken to prevent admission of air, there is risk of exciting suppuration of the cyst. Where, however, the cyst adheres to the abdominal walls, the first danger is eliminated, and the second may generally be obviated by the proper precautions.

In the case of Isaac Thomas there were several circumstances which led me to the conclusion that the cyst did adhere to the abdominal walls. One of these was the severe pain which he had suffered in the situation of the tumor, at times when there was no evidence of its growing rapidly. But still more significant was the fact that change of position did not alter in any way the limits of the tumor, or affect the position of its point of maximum prominence. It was observed, in addition, that by no kind of manipulation could the abdominal walls be made to shift, or slide over it.

The principal objection to the performance of the operation being considered, therefore, to be out of the way, it was determined to treat the case, in the first instance, by tapping the cyst so as to withdraw all its fluid. In the event of this expedient failing, I proposed to attempt to *poison* the echinococci by injecting a small quantity of tincture of iodine into the cyst with a syringe constructed on the same principle as that which is used for the injection of navi. Galvano-puncture was another measure held in reserve, in case neither of the other two should succeed.

On September 3d, in accordance with these views, my colleague, Mr. Prichard, tapped the cyst, and withdrew from it twenty-three ounces of a perfectly limpid fluid, void of albumen, as before.

In performing the operation, care was taken that no air should get into the sac. The result was an immediate collapse of the tumor, which, from extending to two inches below the umbilicus, immediately before the operation, could scarcely now be felt below the margin of the ribs. This change was attended by a sense of very great relief. No ill consequences followed the tapping, and in two or three days the patient felt quite well and comfortable.

The cyst did not fill again; and when the man left the house, in the middle of October, nothing could be felt of the tumor. At my request, he came back about two months afterwards, merely to show himself. As he was still suffering from catarrh, he remained a short time in the hospital. During this period he was examined repeatedly with very great care, but no external indication could be discovered of the former cyst. He was entirely relieved from

all the symptoms which formerly attended it, and he had gained much flesh and strength.

I ought to add that, on examining with the microscope the sediment which was thrown down by the fluid taken from the cyst on the second occasion, I found four very beautiful echinococcus-hooklets in it.

ART. 60.—*On Faradization in Lead-Colic.* By M. Briquet, Physician to the Hôpital la Charité, in Paris.

(*Medical Times and Gazette*, July 23, 1859.)

"We have lately witnessed," so writes the able foreign correspondent of the '*Medical Times and Gazette*,' "in the service of M. Briquet, at the Hôpital la Charité, the good effects of the application of 'electricity by induction,' or Faradization, as it is now commonly called, in the treatment of lead-colic. The following case, being one of several which we have lately seen brought to a successful termination, will serve as a suitable introduction to the remarks which form the sequel.

"A house-painter, æt 34, was admitted a few days ago, laboring under all the symptoms of lead-colic. It was his third attack. The first occurred as far back as 1843, and lasted eight days; the second took place three years ago, and he was then under treatment for a month. For some weeks prior to admission on the present occasion he suffered from uneasiness, with dull pains in the stomach and bowels. These pains assumed an acute character only two days before his entry into the hospital, and were accompanied with nausea and vomiting. At the visit, and when first seen by M. Briquet, he was writhing with pain, and constantly changing his position in bed. During the paroxysms, between which the intervals were but short, he lay on his face with the knees drawn up. There was considerable hardness and retraction of the abdomen, rendering it impossible for him to assume the erect position. The pain was not confined to the abdomen, but extended to the muscles of the chest, as well as to the lower extremities—in the latter he complained of a feeling of numbness. The pain was, however, most acute along the course of the rectus muscle of the left side, and over the hypogastric region on that side. The features were contracted, and expressive of great suffering, but there was neither fever nor constipation. After a very short interrogatory, M. Briquet, having no doubt as to the nature of the affection, proposed the immediate application of electricity. The pain being, as we have already stated, more severe on the left and lower portion of the abdomen, he selected this spot for the Faradization, which was conducted as follows: A wet sponge was attached to one of the wires of the apparatus, while a metallic brush was attached to the other. These, it may be remarked, are the appliances in use when the Faradization is to be confined to the skin. The sponge was then placed in contact with the body at the superior portion of the left rectus muscle of the abdomen, while the metallic brush was passed over that part of it where the pain was most severe. The machine, which at first was but feeble, was made by degrees to attain its maximum of intensity, and as it increased in power, the brush was passed more and more rapidly over the skin, until it produced a considerable amount of redness. The operation lasted precisely three minutes and a half, at the end of which every symptom of colic had disappeared, and the patient, who on admission was doubled up during the paroxysms, was now able to stand erect, and walk about the ward with the most perfect ease and altogether free from pain. Of course, it will occur to all who have had any experience in this peculiar affection, as it did to ourselves, that the mere removal of the local pain is not all that is indicated in its treatment; and hence that electricity applied, as described above, can only be viewed in the light of a palliative, other remedies being necessary for the elimination of the lead with which the system is supposed to be charged, and on the presence of which the colicky pains are presumed to depend. This is no doubt true; but the removal of one of the most painful and alarming symptoms by such a simple and speedy process as that of Faradization is, from the novelty of the measure by which it was accomplished, not unworthy of attention.

"The question naturally occurs, Faradization being merely palliative, and the exciting cause of the colics still in operation on the system, are these latter liable to return? On this point we can speak most decidedly, as well from our own observation as from the statement of M. Briquet, whose experience in the treatment of this affection has been extensive. In only one of the cases which we have observed, was a second Faradization necessary, the others having been completely cured of their colics by one *séance* only. M. Briquet's experience in somewhere about a hundred cases carefully observed by him, goes to prove that a relapse is by no means common, and if it does take place, it is generally after an interval of five or six hours: but that if the patient passes twenty-four hours without any return of the colicky pains, no further Faradization will be necessary. Having got rid of the most urgent and the most alarming symptom of this disease by means of Faradization, the medical, or rather the constitutional, treatment employed by M. Briquet with a view to the elimination of the lead, is extremely simple, as compared, at least, with the medication generally in use.

"This treatment is as follows: the Faradization terminated, a sulphur bath is ordered, which is repeated every second day during the patient's sojourn in the hospital. He is ordered to drink every day about four pints of lemonade, to which are added from thirty to forty drops of dilute sulphuric acid. A gun potion is also prescribed, containing from thirty to forty grains of alum; and each night, or every alternate night, as the case may be, a pill is ordered containing one grain of the watery extract of opium. It will doubtless appear singular, seeing that obstinate constipation is so frequently a concomitant of this disease, that in this treatment there exists no element of a laxative nature. Purgatives he never prescribes, and rarely ever has recourse to an enema. In almost all cases he has remarked that the bowels begin to act spontaneously from one to three days after the Faradization has accomplished the removal of the abdominal pains. The object of this treatment is simply the elimination of the toxic principle from the system; it exercises no influence whatever over the colics, nor is it intended to do so. Seeing that the first part of the treatment, namely, the removal of the pain of the abdomen by means of Faradization is somewhat novel, it may not be amiss to inquire here on what pathological grounds it is founded. Among the earlier pathologists there existed little or no difference touching the seat of this affection; all of them referred it to the digestive tube either in part or throughout its entire extent. Of the cause and origin of the pain, however, there has been, and still continues, much diversity of opinion; some maintaining that it originates in the contact of the particles of lead with the mucous lining of the digestive tube (a doctrine which, by the way, is no longer tenable, since the possibility of absorption of lead by the skin has been admitted); some think that the pains or colics result from an inflammatory condition of the mucous surface of the intestines, while others hold they are the result of the distension produced by accumulated feces. Tanquerel, a man of no mean authority, traces the colics to functional disturbance of the great sympathetic nerve. Giacomini, of Padua, discarding all these theories, was the first to enunciate the views we now see acted on by M. Briquet; to wit, that the pain in lead colic has its seat not in the digestive tube at all, but in the muscular parietes of the abdomen and the diaphragm. This same opinion we find hinted at, although not formally expressed, by Andral, Griseolle, and others whose attention has been specially directed to this malady. M. Briquet's reasons for his faith in the theory of Giacomini are founded on the following observations: If, during the examination of a patient suffering under lead-colic, moderate pressure be exercised over the abdomen, by means of the fingers, in such a manner as to affect only the skin and the adjacent muscles, without interfering with the more deeply-seated parts, acute pain will be produced identical in its character with that experienced during a paroxysm of colic. Again, if pressure be exerted over the abdominal muscles at points under which the intestinal canal does not run, as, for example, over the crest of the ilium, an acute pain will invariably be the result. These two reasons taken in connection with the extension of the pain to the muscles of the back and limbs, which is often observed in painters' colic, he considers

conclusive as to the purely muscular character of the pains. The constipation, he believes, has no connection whatever with the abdominal pain, as it sometimes persists for days after the latter has been removed by Faradization. The nausea and vomiting he also regards as purely sympathetic, depending, it may be, on the extreme sensibility of the muscles, and this opinion derives countenance from the fact that these symptoms invariably disappear when the hyperæsthesia has been removed. Neither Briquet, nor any other holding the same pathological views in reference to this disease, attempts to explain why, by preference, the abdominal muscles are those chiefly affected. In the present state of our knowledge this point involves some difficulty. Both Duchenne, of Boulogne, and M. Briquet, however, endeavor to account for it by adopting the hypothesis that there exists some elective affinity between the lead poison and this particular portion of the muscular system. Faradization, according to M. Briquet, acts purely and simply as a revulsive in this affection, and is perhaps one of the most powerful agents of this class which we possess. For this reason, the skin is Faradized until it becomes red, and almost invariably as soon as the redness is produced, the abdominal pains immediately disappear. Sometimes this operation requires great firmness on the part of the operator, and no small amount of endurance and courage on the part of the patient, the pain experienced being excessive, as evidenced by the cries and efforts of the patient to escape from the hands of the operator. The amount of suffering should, however, prove no objection to the process, as the Faradization can be perfectly carried out while the patient is under the influence of chloroform, the peculiar action of which does not, we believe, interfere in any way with the curative effects of the electricity."

ART. 61.—*The Diagnosis and Treatment of Hepatic Colic.* By M. TROUSSEAU.
(*Journ. de Méd. et Chir. Pratiq.*, Jan. 2, 1859.)

Professor Trousseau recently directed the attention of his clinical class, at the Hôtel Dieu, to the frequency with which cases of hepatic colic are mistaken for other affections. Although, in its severe form, hepatic colic is readily recognized, yet a slighter form, which is more common, especially in women, it is very generally ignored. The reason is, that the pains caused by the small calculi are felt principally in the epigastrium, from which they radiate through the abdomen, the chest, the back, and sometimes even down the thighs. The practitioner, accordingly, is very apt to refer the pain to other organs than the liver, and, in particular, to ascribe it to a spasmodic affection of the stomach. The opinion appears, in many cases, to be further confirmed by the presence of vomiting.

M. Trousseau illustrated these observations by two cases, both women, of sedentary occupation, from forty to fifty years of age. In the case of the first, pain in the epigastrium, with vomiting of matter not containing bile, occurred two days before her admission into the hospital. The severe pain was succeeded by a feeling of languor and fatigue. The fecal matters passed by this woman were collected, washed, and carefully examined, when a calculus of the size of a pea, consisting of cholesterine, was found. The second woman had been subject to "cramps of the stomach" for several years. These had been treated without success. When she came under M. Trousseau's care, she had been suffering for several days from attacks of severe pain starting from the epigastrium, and darting down through the belly into the right flank and into the back. These attacks came on two or three times a day, and lasted for from half an hour to two hours. On the 12th of March the pains continued for five hours, on the 13th for eleven hours: they were accompanied by non-bilious vomiting, and on the evening of the last-mentioned day they ceased suddenly, and were succeeded by slight shiverings and well-marked jaundice. The bowels having been confined for some days, a purgative was administered: the fecal matters were washed, and five calculi with polished facets were discovered.

Before alluding to the treatment, M. Trousseau entered somewhat minutely into a consideration of the symptoms in these and similar cases. He laid it

down as a general rule, that if, in addition to pains of the character described above, there be vomiting of matters not colored with bile, the symptoms depend upon the presence of a calculus in the common duct; and that ninety-nine times out of a hundred, the presence of bile in the urine will next day confirm the diagnosis. It must, however, be borne in mind that, although the absence of bile in the matters vomited, and the subsequent occurrence of jaundice, entitle us to give a positive diagnosis, the opposite circumstances—namely, the presence of bile in the vomited matters, and the absence of jaundice—do not justify us in absolutely denying the existence of hepatic colic. In most cases the jaundice is so slight as to escape the attention of the patient; indeed, generally it is only by the condition of the urine that its existence is revealed. In addition to pain, vomiting, and the presence of bile in the urine, another diagnostic means is at our disposal. This consists in an examination of the fecal matters: for this purpose, the evacuations are to be collected from the time of the cessation of the attack during the next three or four days, as a calculus may occupy this time in passing from the duodenum to the rectum. The matters so collected are to be washed in a hair sieve until the solid matter is completely broken down. Under any other way of proceeding, the calculus might escape detection. It does not always happen, however, that the calculus, the cause of the suffering, is discharged. It not unfrequently happens that there are concretions in the gall-bladder which are too large to pass along the cystic duct. In such cases, the bodies get partially impacted in the duct, and give rise to much suffering; but on their going back into the gall-bladder, the relief is as complete as when they drop into the duodenum. In these circumstances, we are to be guided in our diagnosis by the sudden appearance and disappearance of the symptoms, taken in connection with the absence of symptoms pointing to the disease of other organs.

With regard to treatment, nothing can be done to get rid of calculi already existing; our attention must, therefore be limited to the treatment of the attack of hepatic colic, and to the preventing the formation of fresh calculi. The treatment of the attack is not very satisfactory, and often the remedies employed do more harm than good. Thus many practitioners prescribe opium: but as opium checks all the secretions, with the exception of the secretions of the skin, it is unfavorable to the accumulation of bile in the gall-bladder, which acts beneficially in helping the expulsion of the calculus. The pain, it is true, is deadened by opium, but the expulsion of the calculus is delayed. The relief of suffering is, according to M. Trousseau, more advantageously obtained by chloroform or sulphuric ether given internally, while frictions with an alcoholic extract of belladonna, reduced by water to the consistence of a syrup, are made over the seat of pain. The ether is generally given in the form of capsules, each of which contains eighteen drops; in this way a considerable anæsthetic action is produced, while the biliary secretion is not interfered with. Prolonged hot baths sometimes give relief, though in general they produce little effect. When the attack is past, M. Trousseau generally gives, with a view to improving the digestion, seven or eight pills daily, each containing three grains of extract of ox-gall.

The real treatment of these cases, however, is prophylactic. As above stated, M. Trousseau thinks we cannot act upon calculi already formed, although M. Barthe supposes that, by a vegetable diet, combined with the use of alkalies and turpentine, biliary concretions may be disintegrated. All we can hope for, therefore, is to prevent the enlargement of existing calculi and the formation of new ones; and this we must do by impeding the production of cholesterol. Now, as cholesterol is a fatty substance, we must, in order to diminish its quantity, diminish all the fatty matters of the economy. For this purpose we must look to alkaline substances, which saponify the fats and render them more soluble. to exercise, which promotes their combustion; and to an alimentation which shall contribute as little as possible to their development. Peyrilhe, the first professor of Therapeutics in the faculty of Paris, noticed that, in large herbivorous animals, such as oxen and cows, which are very subject to hepatic gravel, the gall-bladder was filled with calculi from the month of April to the month of June, and that it ceased to contain any from the

beginning of September until the end of December. He thought that the production of cholesterine was favored in these animals by a dry alimentation, consisting in part of oleaginous grains; while, on the contrary, the chlorophyl, or green coloring matter of plants, acted as a special solvent of this fatty matter. Peyrilhe was right; but he had not noticed another important element in their cases—the influence of prolonged repose. In man, a sedentary life acts in the same way as the stalling of oxen; and this is the reason why women are more subject to biliary calculi than men. Green vegetables, though acid, make the urine alkaline; they possess the property of saponifying fats; and you have thus, in exercise on the one hand, and in the use of green vegetables or alkalies on the other, the principal elements of the prophylactic treatment of biliary calculi.

To patients suffering from this affection, we should, therefore, continues M. Troussseau, prescribe walking exercise, a regimen, having for its basis green vegetables, to which may be added lean meat and fresh fruit thoroughly ripe. The patient should abstain from eating oleaginous matters, such as fat of meat, butter, oil, milk; he should also partake sparingly of amylaceous or gelatinous matters, which, on account of the large proportion of carbon they contain, have the greatest analogy with fat. We may at the same time recommend the use of alkaline mineral waters, such as those of Vichy, the Mont Dore, &c. Not that these are to be given so as to saturate the system with the mineral principles of the waters, but only in such a way as to improve the general health. They should not be given continuously for too long a time, but their use should be interrupted and again resumed.

ART. 62.—*A musical bruit, not yet described, heard at the middle and lower part of the sternum of a man affected with Cirrhosis of the Liver.* By Dr. LEMAIRE.

(*L'Union Méd.*, Jan., 1859; and *Med.-Chir. Review*, Oct., 1859.)

CASE.—Joseph V., *ret.* 43, admitted into the Charité, September 6th, 1858, had always enjoyed good health, with the exception of slight bronchitis seven years ago; until two months before admission his abdomen was seen to enlarge; loss of appetite and diarrhoea followed, with thirst and loss of strength. On admission the abdomen was swollen, tympanitic above, fluctuating at the inferior part; the dullness of the liver was slightly increased, that of the spleen considerably. The tongue moist; the pulse eighty, regular; the heat of the skin normal. The heart occupied its normal limits; the valvular sounds entirely normal (by an evident misprint they are stated to have been *tout à fait anormaux*), without any murmur. Over the middle and inferior part of the sternum, over the right cavities of the heart, a musical sound was heard, which so closely resembled a sibilant râle as at once to suggest the presence of bronchitis, but on examining carefully the different parts of the thorax, the vesicular murmur throughout was found soft, and unaccompanied by any kind of râle. The bruit was continuous, and not isochronous with the beats of the heart. It was increased at each inspiration, and it increased in intensity as respiration became accelerated. The bruit continued when respiration was arrested. A strong continuous blowing murmur was heard in the vessels in the neck. The bruit continued on the 5th, on the 9th it changed to genuine *bruit de rouet*, which was heard in the præcordia, and which increased in intensity the nearer one approached to xiphoid process; it varied in character, but was persistent, even when respiration was arrested. The bruit became feeble as death approached, which occurred on the 24th. Bouillaud declined offering an opinion as to the cause of the sound. The post-mortem threw but little light on the subject; the heart and chief arteries were perfectly healthy, nor was there any marked abnormality in the lungs. The liver was in a state of advanced cirrhosis, but the fossa of the vena cava was almost obliterated, and the vein seemed to have been compressed between the edge of the liver and the spine. It is possible, according to the author's opinion, that this compression was the cause of the abnormal sound; but it was by no means proved that this compression really existed.

ART. 63.—*On Inflammation of the Thoracic Duct.* By Dr. J. WORMS.

(Gaz. Héb. de Méd. et Chir., May 6, 1859.)

This case occurred in the military hospital of Gros-Caillou. The patient's age was forty. The inflammation appears to have been propagated to the subclavian vein from the thoracic duct and receptaculum chyli, and the symptoms of stasis of the venous blood in the upper extremities of the left side is explained by the consequent formation of a clot in the subclavian vein. The jaundice is referred by Dr. Worms, not to any particular affection of the liver, but rather to a change in the blood consequent upon the shutting off of the supplies of fresh lymph.

CASE.—The patient, *ret.* 40, was aroused, in the night of the 15th of December, 1858, by a violent pain, seated deeply in the abdomen, and radiating towards both sides; during the following days this pain subsided somewhat, but violent fever set in. On the fourth day acute pain in the muscles of the forearm supervened, the member becoming red and swollen; then the thighs and the calf of the legs became equally painful, and the evil increased from day to day.

The patient entered the hospital on the 25th of December; the sclerotics was slightly icteric; the lips, tongue, teeth, and skin, were dry; the pulse full, hard, and 80 in the minute; the abdomen tympanitic, but not painful. The left arm could not be moved; the anterior and posterior side of the forearm was the seat of considerable tumefaction and of intense pain. The superficial veins of the whole limb were much distended and painful on pressure; they presented the peculiarity that it was impossible to make the blood which they contained progress towards the shoulder; while, on the contrary, less resistance was encountered in making it go toward the back of the hand. This circumstance led to the supposition that an obstacle existed to the venous circulation; in examining the whole venous system carefully, no hardness was found except in the left subclavian, which was hard, and rolled underneath the finger. All the other large veins were much distended, and the patient complained of an almost intolerable pain which exactly followed their track. The patient was treated with sulphate of quinia in combination with camphor, in order to combat the general septic condition, and applications of camphorated alcohol were applied to the tumefied arm.

On the 26th an aggravation of all the symptoms had taken place; the emaciation had made rapid progress; the patient's look was unsteady; the sclerotics was much more icteric, and the patient was in a state of drowsiness, when not aroused by words. The swelling of the arm was much increased.

During the following days the patient became rapidly worse; the icterus became general, and assumed a shade approaching to green; the intellect was troubled; the evacuations became involuntary, and convulsive movements of the muscles of the lower jaw supervened. The patient died on the 30th of December.

Autopsy.—All the tissues of the left arm were colored yellow; the aponeurosis was sheathed with an organized fibrinous exudation; all the veins were distended with viscous blood, which was completely discolored, and resembled clear bile. From its passage over the first rib to its junction with the internal jugular, the left subclavian vein was very adherent to the surrounding cellular tissue, and was obliterated by a yellow and hard fibrinous clot.

The whole venous system was distended with uncoagulated blood, and the intestines were much distended by gas. About the cæcum, and in a portion of the ascending colon, deep ulcerations of the isolated follicles existed, without the glands of Peyer being enlarged. The spleen was triple its normal size, and its tissue reduced to a pulpy mass.

The entrance of the thoracic duct into the left subclavian vein was surrounded by an indurated cellular mass; the duct was filled with a large quantity of phlegmonous pus; the receptaculum chyli measured five centimetres in diameter, its walls were colored light yellow, and adhered to the surrounding cellular tissue; the tunics of the whole duct were thickened and quite opaque, the

internal coat was softened, deprived of epithelium, and presented small and red ecchymotic spots.

The vertebral column was healthy. Numerous swelled glands surrounded the mesentericum elyti; some of the lymphatics joining it also contained pus. The glands from which these vessels proceeded were white and softened in the part in which the lymphatics originated; the opposite part was hyperemic and harder. The other viscera, and especially the liver and biliary ducts, presented nothing remarkable.

(E) CONCERNING THE GENITO-URINARY SYSTEM.

ART. 64.—On the Changes of the Urine in disease. By Dr. BRATTLER.

(*Med. Cen. Zeitung*, 85, 1858. and *North Amer. Med.-Chir. Rev.*, May, 1859.)

Dr. Brattler has made a series of very accurate investigations on the changes of the urine in typhus, morbilli, scarlatina, diseases of the heart, &c., and he has embodied the results in an elaborate treatise, entitled "*Beitrag zur Urologie im Kranken Zustande*," München, 1858, *Joh. Palm's Hofbuchhandlung*.

The author gives the following summary of his urological observations:—

Casting a retrospective glance upon our investigations and experiments, we find that the urine does not suffer in disease any changes peculiar to the different morbid conditions, but that these changes are in relation with definite processes going on in the organism. The urine of a case of typhus, pneumonia, cholera, or Bright's disease, may have one and the same qualities, for the very reason that certain processes, which modify the secretion of urine, may take place in any of these diseases.

The quantity of urine. It is *diminished*: In the commencement of nearly all febrile diseases; in diseases of the kidneys, when the uriniferous tubules are obstructed (morbus Brightii).

In diseases in which organism suffers great losses of serum, as excessive diarrhoea, cholera, copious perspiration.

In diseases of the circulatory and respiratory organs, in consequence of less blood being furnished to the aortic system, and therefore to the kidneys, as in disease of the heart, and in pleuritic exudation.

It is *augmented*: By the resorption of hydropic effusions and exudations.

In polydipsia, diabetes insipidus.

Urea. It is *diminished*: In the re-convalescence from all acute diseases, in which the organism has suffered a considerable loss of substance through fever, as in this case the nourishment carried into the system is used for the reparation of the lost nitrogenous tissues.

In the diseases of the digestive organs which hinder the resorption of the ingesta, as chronic vomiting in atrophy after typhus, and cancer of the stomach.

In diseases of the kidneys, interfering with their functions (morbus Brightii).

In diseases of the circulatory and respiratory organs, in consequence of less blood being furnished to the aortic system, and therefore to the kidneys.

It is *augmented*: In all diseases accompanied by fever, viz., by elevation of temperature. (The frequency of the pulse bears no constant relation to the secretion of urea.) The secretion of urea is the greater the higher the temperature rises.

An exception takes place only when in febrile diseases the functions of the kidneys is at the same time interfered with, be it by disease of these organs themselves, or secondarily by the influence of other organs.

In diseases in which the urea has been retained for a long time in the blood by functional disorder of the kidneys, after removal of the difficulty, as morbus Brightii, cholera, and disease of the heart.

By the resorption of hydropic effusions, as morbus Brightii, and dropsy from disease of the heart.

Chlorides. They are *diminished*:

In all diseases in which exudations or transudations take place, these effusions

being rich in chlorides, as in typhus, pneumonia, pleuritis, Bright's disease, cholera, acute rheumatism, &c.

In diseases of the digestive organs which hinder the resorption of the ingesta.

In diseases of functional disorders of the kidneys with diminished urinary secretion, as in Bright's disease, and disease of the heart.

They are augmented: By the resorption of hydropic effusions.

Phosphoric acid. It is diminished.

In diseases or functional disorders of the kidneys with diminished urinary secretion, as in Bright's disease, and disease of the heart.

In diseases of the digestive organs which hinder the resorption of the ingesta.

It is augmented: In acute febrile diseases by the increased metamorphosis of tissues containing phosphorus.

The increase of phosphoric acid is, however, not as constant as that of urea.

In diseases in which the phosphoric acid has been retained for a long time in the blood by functional disorder of the kidneys, after removal of the difficulty, as Bright's disease, and cholera.

According to *Hence Jones*, in acute nervous diseases, and in osteomalacia.

ART. 65.—*Case of true recovery after Bright's disease.* By Dr. ROBERT SCOTT ORR, Dispensary Physician to the Royal Glasgow Infirmary.

(*Glasgow Medical Journal*, Oct., 1850.)

This case must be added to the few already on record. That the recovery was real was verified by dissection eight years afterwards, when the patient died from obstruction of the bowels.

CASE.—In the summer of 1851 I attended, at Dunoon, where I then practised, W. M'D.—, a gardener to trade, in very comfortable circumstances, and possessed of some property in Dunoon, for an illness which I considered to be Bright's disease of the kidney. He was then 57 years of age, of thin, spare habit of body, exceedingly active and energetic in the pursuit of his business, and of very temperate and regular habits. His complexion was dingy and sallow, and I often felt inclined to regard him as of strumous habit. His son, it may be mentioned, died of phthisis. His illness commenced slowly and insidiously, with dropsical symptoms, till at length the general dropsy became so great that he was confined entirely to his bed or his easy chair. His face and eyelids were swollen and puffy. His lower limbs were hard and oedematous, and so great was the anasarca, that his thighs were swollen to the size of the body of a man of average bulk. His urine was frequently examined, and found to be highly coagulable, and of low specific gravity. It can be easily conceived that his distress in such a state must have been extreme. His symptoms went on from bad to worse, till I considered him in a very hopeless condition. When he was at the worst, he was seen by Dr. James Watson of this city, who regarded him as being in a very unfavorable state. He was also about this time visited by the late Dr. John Cooper, professor of materia medica, who took a very hopeless view of his case. The treatment I adopted was the administration of mild diuretics, such as the acetate of squill and sweet spirit of nitre, the bitartrate of potash being given freely as a diet drink. He also had five grains of Dover's powders three times a day, and an occasional warm bath. Latterly, the tincture of muriate of iron, with tonics, was found very beneficial. This treatment he followed most religiously during the time he was under my care—together about three months—and I had the satisfaction of seeing the graver symptoms very gradually subside; his health was slowly restored, and his recovery became complete and permanent. He was able to follow his occupation as before, and continued to do so till a few days before his death, which took place eight years afterwards. He never again suffered from any urinary or dropsical symptoms. I confess I was much surprised at this recovery, believing, as I then did, that albuminuria, presenting such symptoms as I have detailed above, was an incurable disease.

In May last (1859) I happened to be at Dunoon, and was requested to visit this person. His bowels had been obstructed for several days, and for twenty-four hours he had been in great distress from pain in the belly of a spasmodic character. He had a small inguinal hernia on the right side, for which he had long worn a truss. This had come down, but had been reduced by his medical attendant, Dr. Gemmell.

On examining him on the 17th of May, I found the whole abdomen soft and elastic, no part of it being more tender on pressure than another. The pain he described to be always present, of a dull character, and at intervals he suffered from severe paroxysms of pain of a more acute nature. The hernia had again come down, but it felt soft and elastic, and was easily replaced. I applied his truss, and directed him to keep it on. This he did at the time; but as the truss was an old one, and fitted badly, he soon took it off again, on account of the uneasiness it gave him. His pulse was eighty, of good strength; skin cool. There was no symptom of inflammation of the bowels. He had been taking pills containing calomel and extract of hyoscyamus, and several doses of laudanum had been administered; also several large enemata had been thrown into the bowels. Having seen him recover under exactly similar circumstances a few years ago, I gave a favorable opinion of his case, thinking that as yet no symptoms of special danger had manifested themselves. Another opiate was administered.

At three A. M. of the 18th I was again called to see him, his friends thinking he was weaker and sinking. I, however, found his symptoms unchanged; his pulse was still eighty, of good strength. I administered a very large enema of tepid water, with thirty drops of laudanum, through a long tube, which was introduced at least eighteen inches up the gut. I had some little difficulty in doing this, however, as the bowel felt narrow and contracted. The tube, when withdrawn, did not exhibit on its surface the slightest appearance of fecal matter. Two very small scybalæ were brought away, but there was no proper motion of the bowels.

At eleven A. M. I found him much weaker; in fact, he had then begun to sink. Some vomiting had taken place. The matter vomited was thin, yellow, and stercoraceous-looking, with a very fecal odor. It was, however, very scanty, and the quantity never afterwards increased. Stimulants were now very freely given, and beef-teen, enemata, &c., and continued during all that day and the following night; but all proved unavailing. He gradually sank, and died, exhausted, on the 19th, about noon. I saw him half an hour before his death. He was perfectly sensible to the last, and did not exhibit any symptoms of urinary disease throughout his illness, nor was there any comatose tendency at the last. His age at death was 65 years.

The view I took of this case was, that the hernia had nothing to do with the symptoms. I considered either that there was an obstruction at some other part of the bowels, or that their obtunacy arose from palsy of their peristaltic action.

Autopsy on the 20th, at two P. M.—On opening the abdomen, a small quantity of red, fish serum was found in the cavity of the peritoneum, but there were no traces of inflammation. The rectum and sigmoid flexure of the colon were very much contracted indeed, and perfectly empty. On slitting them open, they were observed in some parts to be as narrow as the little finger. The colon and caput cæcum were both very small, blanched, and full of flatus. The vermiform process adhered to the cæcum by old adhesions. The jejunum and ilium were blanched, and filled with thin, yellowish, feculent matter; there might be in all about half a gallon of it, and it was similar to what, in small quantity, was vomited during life. This liquid could be felt and heard gurgling in the belly, both during life and before the body was opened. No strangulation or complete closure of the bowels could anywhere be detected. The uterum lying immediately in contact with the right inguinal ring was dark-colored and congested for about a foot in length; a small triangular corner of it fell out of the internal ring when the integuments were raised. It seemed merely to have been forced into it by a little flatus, the bowel at this part being quite empty. This dark congested part was softened and thinned, and, on stripping off the

mucous coat, displayed exactly the appearance of ecchymosis between the mucous and serous coats, and gave me quite the impression that, had life been prolonged, it would soon have sphacelated. The hernia had been perfectly reduced. The mesentery presented numerous minute ecchymotic patches, some of them the size of a split pea.

The right kidney was small, and in some parts deeply notched, its envelope being puckered in many places. The cortical part of it, on a section being made, was found very much narrowed and thinned. The tubular tufts were, some of them, very healthy-looking; others were much encroached upon by granular matter. The granules appeared to me much less in size and more compressed than as seen in ordinary cases of granular kidney, and as if a process of atrophy had been going on in them. Indeed, the whole kidney appeared to have become atrophied, although in this man's body all the viscera were found unusually small.

The left kidney could nowhere be found in its usual situation, but, after diligent search, was discovered lying on the sacrum, exactly in the fork formed by the bifurcation of the aorta. It was very much smaller than the right, having undergone much atrophy; it was nearly circular in form, presented the same notched and puckered appearance externally as the right, but contained more granular matter, of the same atrophied, compressed character as in the other. Both kidneys conveyed to my mind quite the impression that they had undergone a process of repair.

The liver and spleen were both much smaller than usual, but healthy in structure.

ART. 66.—*On the forms and stages of Bright's disease of the Kidney, with especial reference to Diagnosis and Prognosis.* (Fourth Communication.) By Dr. GEORGE JOHNSON, Physician to King's College Hospital.

(*Proc. of the R. Med. and Chir. Soc.*, March 22, 1856.)

The author considers that the *oneness* of Bright's disease is inconsistent with the clinical history and the morbid anatomy of the kidney in its various conditions. A large Bright's kidney usually remains large to the end, and a contracted Bright's kidney has not passed through a previous stage of enlargement. The chief points of distinction between the large white Bright's kidney and the contracted kidney are the following:—

1. The urine secreted by the large kidney is less abundant, of higher density, more constantly and copiously albuminous, and contains small waxy casts with or without oil, but not the granular casts which are thrown off from the tubes of the contracting kidney.

2. The minute anatomy of the two kidneys is different. In the contracting kidney, the gland-cells become disintegrated and washed away, leaving the tubes denuded. In the large white kidney, the cells for the most part remain attached to the basement membrane, and undergo changes varying from a slight granular opacity to a complete oily degeneration, or they may at length become replaced by an albuminous or a fibrinous material which fills and obstructs the tubes.

3. Another important distinction between the two forms of disease consists in the relative frequency of dropsy as a symptom. There are few exceptions to the rule, that patients who die with a large Bright's kidney have had dropsy. In only two out of twenty-six fatal cases in the author's experience had dropsy been wanting at some period of the patient's history; whereas, of thirty-three fatal cases of contracted kidney, there had been dropsy in only fourteen, and in most of these cases the dropsy was very slight and partial.

The author remarked that if all the contracted Bright's kidneys have passed through a previous stage of enlargement, it is difficult to understand how the majority of those patients who have reached this final stage of renal degeneration can escape the dropsy which, in a greater or less degree, troubles nearly all those who die in what is by some writers assumed to be an earlier stage of the same disease. The rule is, that a large Bright's kidney remains so to the end, and that a contracted kidney has not previously been enlarged. But there

are exceptions to this rule. There are cases of Bright's disease in which the kidneys, having become enlarged, subsequently undergo a process of contraction to a greater or less degree. These cases, however, are so exceptional in many of their most important features, that they afford a remarkable confirmation of the doctrine, that in ordinary cases the contracted Bright's kidney is not an advanced stage of a previously enlarged kidney, but the result of a distinct series of morbid changes. The cases in which contraction of the kidney has followed upon enlargement may be divided into three classes: 1st. There are cases in which the weight and size of the kidney are found to be increased after death; yet in the cortical portion of the gland there are unquestionable indications of commencing atrophy and contraction. The author said he had met with six cases of this kind, and showed a drawing of the kidney from one case. The gland was large, pale, and waxy, but the cortical portion decidedly wasted. In the second class of cases, the contraction of a pale, waxy kidney had proceeded farther, so that the size and weight were reduced below the average of the healthy gland. The third class of cases are those in which a kidney, having become enlarged and fatty, has subsequently contracted; the fat granulations being still visible in the atrophied kidney. During a period of fourteen years the author has met with only five examples of contracted fat kidney. In two of these cases the period of transition from a large fat kidney to a contracting kidney was clearly indicated by the microscopic characters of the urine. The large waxy and granular casts were observed to take the place of the small waxy and oily casts which had been present during the earlier periods of the disease. One of these cases was under observation for a period of ten years. The chief points of distinction between a kidney which has been wasted by the chronic desquamative disease and one which has contracted after waxy enlargement were referred to, and illustrated by drawings of two forms of disease.

ART. 67.—Cases of Diabetes. By Dr. CAMPBELL.

(*Medical Times and Gazette*, May 28, 1859.)

The following cases furnish confirmatory evidence in favor of the view set forth by Dr. Campbell, in his work on 'Diabetes and its Successful Treatment.'—(Abstract, xxviii., 288.)

CASE 1.—August, 1858, Mrs. —, æt. 44, the mother of several children, rather a large woman, although she says that she has lost two stones in weight; supposes that her complaint has been brought on by anxiety; has latterly been subject to headaches and palpitations; skin very moist; says that she sweats profusely; has lost her appetite; has constant thirst; her lips stick together; and that she is so altered that a physician long acquainted with her, and who had seen her a few months before, did not recognize her when she called on him. Catamenia regular; bowels confined.

Her case was described by the physician (Dr. Forsyth, of Londonderry) who kindly recommended her to my care, as follows: "She complained chiefly of debility and loss of flesh, and I had not much trouble in tracing these symptoms to a diabetic origin. I found the sp. gr. of the urine 1.040, liq. potassæ turning the sample to a claret color. About eight pints were passed in the twenty-four hours."

When I first saw her, the diabetic symptoms thus described were rather aggravated than otherwise, the liq. potassæ rendering the urine extremely dark.

I prescribed—

R Acid. sulph. dilut. ℥iij.; liq. gent. compos. ℥iiss. M. cap. coch. parv. ter die ex aquæ cyatho.

R Aloes barb. ext. Saponis, aa xxiv.; pulv. ipecac. gr. iv.; ext. nucis vom. gr. iij. M. et div. in pil. xij. cap. j. vel plures h. s. ut opus f.; and enjoined a diet of bran cake, meat, and a free use of vegetables.

Aug. 31.—Urine diminished to four pints, and now only brown, with liq. potassæ; thirst nearly gone, and in every respect better.

Sept. 15.—The sample of urine sent up for inspection contained scarcely a

trace of sugar; the sp. gr. 1.015 (quantity not mentioned); and it was difficult to believe that it could be from the same person.

Nov. 1.—I received a note, stating that she had quite recovered; and on April 19 of this year her husband writes: "I am happy to say that Mrs. — is now quite well; she has resumed her usual diet long since."

Case 2.—Dec., 1856, —, Esq., upwards of 70, attributes his attack to late hours in Parliament, which had been "too much for him at his advanced time of life."

The general health of this patient was not so much lowered as might have been expected, the disease having existed some months; but his son (an eminent surgeon) considered him now fast declining; he complained much of weakness in the limbs, and had a little puffiness on the tibia; had taken gallic acid and other remedies by the advice of his medical attendant in the country, and had also been put on a partially restricted diet: the quantity of urine was now about 80 oz., the sp. gr. not much above 1.030, but it contained a considerable quantity of sugar.

I prescribed—℞ Ammon. sesquicarb. ℥ij.; infus. aur. eo. ℥viij. m.f. cap. coch. ij. ter die; and directed a more rigid diet, with a little brandy and water instead of wine.

This prescription was occasionally varied, with ammonia as the general basis, and he took from time to time small doses of pil. hydr. and pulv. specios. compos., and gradually recovered.

Aug. 5, 1857.—He writes, "I am glad to be able to say that for some months past I have been in excellent health, and my friends tell me I look as well as I ever did."

July 21, 1858—I had a note from his son, who says, "He has latterly been well in health, and when I last examined the urine, no sugar could be detected, but there was a large amount of lithates. He lives pretty much as usual, temperately always as regards alcoholic liquors, but does not eat much bread: the bran cake his servants managed very well,* and he takes it occasionally. He has lately suffered the operation of reclamation on a cataract in his right eye, and the result, I am thankful to say, seems likely to be satisfactory."

On a recent occasion, when I accidentally met this gentleman, I had the satisfaction of hearing that my patient, though in his 78th year and feeble, had not required any restriction in diet for eighteen months or more.

Case 3.—The Rev. Mr. —, nearly 64—Sept., 1857.—The history of this case, written by himself, is exceedingly graphic; and only the fear of occupying too much of your valuable space prevents me from transcribing it at length. The disease had been slowly undermining his system several months, and having been in the habit for some years of resorting to a hydropathic establishment when out of health, he had recourse to that in the first instance. Contrary to what had been usual with him, instead of recovering strength, he continued to get weaker, and the nature of his disease not being ascertained, the proprietor considered him nervous, and recommended him to go to the seaside. After remaining there some weeks, still losing ground, he came to consult an eminent physician in town, who discovered the nature of his case, proscribed for him, and put him on a partially restricted diet. When he placed himself under my care, he was somewhat better, but highly nervous and dyspeptic, the urine still abnormal in quantity, and containing sugar. I advised that the diet should be still farther restricted—that he should have weak brandy and water instead of claret. Substituted ext. humuli at night for the opiate as he was too wakeful to do without anything, and prescribed the following mixture: ℞ Magnes. carbon. ℥iv.; pulv. acacia ℥ij.; sp. ammon. arom. ℥ij.; infus. gent. compos. ad. ℥viij. m. f. mist. I find this prescription occasionally varied as Dec. 16. ℞ Potass. bicarbon. ℥ij. ℥j.; magnes. carbon. ℥iv.; pulv. acacia ℥ij.; tinct. hyoscy. ℥j.; infus. calumbæ, ad ℥viij. m. f. mist. cap. coch. ij. ter

*Several of my patients have succeeded equally well in the manufacture of the cakes—others have preferred purchasing the bran biscuits. When the bran cakes have been found unpalatable, or have turned moist in the centre, or rapidly changed, it has arisen from some fault in the preparation, or more commonly in the baking.

die. At one time small doses of tinct. nucis vom. were ordered to the alkaline mixture, but soon laid aside again. He gradually recovered and resumed his clerical duties, which he had long been incapable of performing.

June, 1858.—He writes: "I am now gradually returning to ordinary diet. I substitute brown bread for the bran cake. I have now more fear of lithic acid than of sugar."

March 23, 1859—"I have no return of diabetes, and am decidedly stouter and more vigorous. Now take three glasses of port wine daily, two at dinner, one mulled at night, or at 8 o'clock in the evening; brown bread and greens, meat three times a-day, but not much."

CASE 4.—August, 1858. —. Esq., Banker, aged upwards of 60, consulted Dr. Babington, who prescribed for him, and kindly recommended him to me for instructions as to diet. Dr. Babington's prescription was five grains of ammon. sesq. in infus. gent. 3. three times a-day. Writing to me shortly after, this patient says: "It is quite astonishing how little water I part with in comparison—it was immediate when I paid strict attention to diet."

I had not heard of this gentleman for many months. In answer to an inquiry as to his state, he writes (April 23, 1859): "I do not make more than one quart per day; sometimes there is a little red sediment at the bottom. I sleep well and eat well."

"The above," adds Dr. Camplin, "are specimens of a few cases in which a return to the ordinary diet has been practicable: in the majority the disposition to the formation of sugar has appeared too strong to render this advisable; and I have thought it better for the patient to be satisfied with comparative health and comfort, with the diabetic diet, than to run the risk of a relapse, particularly where, from the distance and other circumstances, I could not examine the urine from time to time."

"The remedies prescribed in the above cases were in the first acid, in the others alkaline; in each the indications seemed obvious, and the result was most satisfactory. In cases now under my care (especially five or six from 30 to 35 years of age), I am testing the value of various remedies, and hope by classifying them, as much as practicable, to obtain definite results."

"In conclusion, I would only remark that, of upwards of twenty cases lately, more or less under my surveillance, I have only seen one fatal, and that in a gentleman who had long had phthisis, and was unable to rise from his bed when I saw him. Two others have been unsatisfactory, as from various causes I have lost sight of them. In all the rest, the disease has been kept in check, if not entirely removed."

ART. 68.—On the relation of Diabetes to affections of the Brain.

By Dr. E. FRITZ.

(*Gaz. Hebdomadaire de Méd. et Chir.*, No. 17, 19, 22, and 24, 1859.)

With great diligence, Dr. Fritz collects together cases of disease or injury to the brain in which the condition of the urine was carefully noted. These cases are twenty-four in number. The conclusions to which they lead are:—

1. That diabetes may be an effect or symptom of certain affections of the brain, and that the urine under these circumstances may sometimes be only increased in quantity, without containing any sugar.

2. That we do not know anything of the particular seat or character of the cerebral injuries which determine the presence of sugar in the urine.

3. That diabetes may be connected with functional as well as with organic disturbance of the cerebro-spinal nervous centres.

4. That the symptoms of diabetes depending upon cerebral disturbance do not differ materially from those of ordinary diabetes, but that they differ rather in their transitoriness, and in tending usually to a favorable termination.

(F) CONCERNING THE CUTANEOUS SYSTEM.

ART. 69.—*Epidemic Sudamina in a family of eight persons.* By Dr. GEORGE D. GIBB, Physician-Accoucheur to the St. Pancras Royal Dispensary.

(*Lancet*, July 30, 1859.)

In hot climates, great heat of the skin, with inordinate sweating, are sometimes followed by an extensive eruption of sudamina, which may affect several individuals of a family. The eruption of small vesicles, filled with an almost colorless fluid, may come and go for several days, finally subside, and a recovery ensue, with no greater inconvenience than tenderness and slight irritation of the skin for a short time afterwards. The same causes that produce the eruption in a single member of a family are likely to influence the remainder; and hence it may actually be epidemic in a family without its necessarily extending to other persons.

At the St. Pancras Royal Dispensary, a mother brought to Dr. Gibb her child, two years and nine months old, covered over the head, the neck, and the face with a distinct and well-marked sudaminal eruption, the small vesicles being as large as millet seeds, surrounded by a red base, and accompanied by profuse sweating. This eruption had commenced six days before, and had disappeared and become renewed several times; and now isolated groups of the vesicles were appearing on other parts of the body; and in some places (as between all the fingers and on the back of the hands) solitary vesicles showed themselves. The child was cross and fractious, and no doubt suffered from the well-known pricking and tingling sensation so characteristic of miliaria. On looking from the child to the mother, she was found to be suffering from the same thing, but in a milder degree, the eruption being confined to the face and the flexures of the arms. Her other children, six in number, were likewise all, though variously, affected by it, thus, in some the eruption was chiefly confined to the face, head, and neck; in others, to the limbs; and in one it seemed to be associated with boils over the hip, rendering her for the time lame.

The cause of the eruption would seem to have been the extreme heat. In the words of the mother, they had all been "overwhelmed with perspiration, actually dripping with it."

ART. 70.—*On Factitious Urticaria.* By Dr. GULL, Physician to Guy's Hospital, &c.

(*Guy's Hospital Reports*, 3d series, vol. v., 1859.)

Willan describes a form of urticaria which shows itself when the skin is rubbed. "It may," he says, "be excited on any part of the body, in a few seconds, by strong friction or scratching; but the wheals presently subside again." It is included by this author in "urticaria evanida," because the wheals are transient: nor does he distinguish it from the ordinary chronic urticaria, with wheals arising spontaneously. It is this distinction which the term "factitious" is intended to mark for the malady thus named (when it amounts to a malady) is not associated with common urticaria, the skin having its natural appearance in the cases Dr. Gull has seen, unless rubbed by the dress or otherwise, or stretched by the use of the muscles in violent exertion. The patients were not liable to the eruption of any wheals but such as had this mechanical origin. Any form of wheal in these cases could be determined by the direction and extent of friction on the skin; and if with a blunt point any figure or letter was traced, it quickly came into relief with great sharpness of outline.

The effect is greatest where the skin is well supplied with muscular fibro-cells; and hence on the volar surface of the thumb it is scarcely produced.

This susceptibility of the skin is common, in a greater or less degree, to all persons, and can be termed morbid only when extreme. In the first patient in whom Dr. Gull noticed it, it was the source of great inconvenience; for, if

the skin was handled roughly, as in wiping the face with a towel, or in pulling on the socks, it would quickly become swollen and stiff with wheals. This susceptibility may be hereditary. It was so in the case of the gentleman who afforded his arm for the sketch. His father's skin was equally irritable. In four other cases which the author has seen, this tendency in the skin came on gradually, without any assignable cause. In one only was there any recognizable disturbance of the general health, and that was in a youth of fifteen, who was liable to attacks of spasmodic asthma, which seemed to be associated with the state of the skin.

When it was found that a wheal of any shape could be made upon the healthy skin, it suggested a more minute inquiry into the nature of a wheal, and the conclusion arrived at was, that wheals are principally due to contraction of the muscular tissues of the skin. If a line be traced with slight force on a skin which is prone to this form of contraction the first noticeable change is a wrinkling of the surface, as in "*cutis asperina*." In forty seconds there is a slightly raised red line; in sixty seconds the line is palpably raised and hard; in ninety seconds there is an obvious wheal, which becomes fully developed in three minutes. If a large space be rubbed there is a sensation of tightness and stiffness, as if the part were hide-bound. If two points be marked on the skin previous to the friction, they are found nearer together after the wheal has risen. With the rising of the wheal, which is white and firm, there is an accompanying areola of capillary hyperemia, which, after some minutes (fifteen or twenty-five), disappears, leaving the wheal for a longer time persistent.

If, as here suggested, a wheal be due to muscular contraction, we should, *a priori*, expect its formation and duration to be modified by whatever influences the activity of the involuntary muscular fibre, and such is the result of experiment. After dropping chloroform on the skin, however susceptible it might have been before, no wheal could be brought out by friction, and when chloroform was applied to a wheal already risen it quickly reduced it. When ice was applied to the part immediately after friction, a wheal did not rise. By stretching the skin the wheal could be obliterated, apparently by overcoming the contraction of the muscular tissue. These facts are elucidated by a collateral experiment. If the stomach and intestines of a cat or dog, immediately after death, be exposed, imperfect wheals (but essentially wheals) may be formed upon them by passing a point sharply over their surface. These are plainly the result of muscular contraction.

When we consider the rapidity with which the eruption forms, its noticeable gradations through *cutis asperina*, the hardness and sharpness of its outline, the conditions which modify it, and the parts of the surface where it is most readily excited, and its non-occurrence on others, the conclusion above stated seems irrefragable.

How a wheal is excited in ordinary urticaria, whether directly by the circulation of some irritating substance through the cutaneous tissues, or indirectly by reflection through the vaso-motor nerves, or indifferently by both modes, is not proved. Admitting that the blood is the more common channel, there are still many clinical facts, as well as the proofs given above, which show that it is not the exclusive one. It is well known that exciting or depressing emotions will favor the eruption, and sometimes it seems to be caused by merely thinking of it. We are so much in the habit of viewing these phenomena as evidence of the elimination of a *materia morbi*, as an "effort of nature" to throw off what is offensive, that we are prone to overlook all other modes of action.

ART. 71.—Great pigment deposit in the Skin without disease of Supra-renal Capsules. By Dr. PARKES, Physician to University College Hospital, &c.

(*Medical Times and Gazette*, Dec. 11, 1858.)

CASE.—William Barker, æt. 66, a cabman, of extremely intemperate habits, was admitted into University College Hospital on October 7, 1858, with nautes, dependent on contracted liver. He was a fine strong-built man, and in spite of

exposure to weather and of his habits, had had remarkable good health. The only illness he could recall to mind was an attack of jaundice seven years before, for which he was treated in University College Hospital for five weeks. He left the hospital apparently well. Some time afterwards (four or five months) he noticed that some parts of his skin (which before had been of healthy color) were gradually becoming darker, especially the skin of the face and neck; he then noticed dark patches on the body, and on the arms and thighs, and these increased until a very considerable part of the whole body had assumed a very dark hue. Those portions of the skin which did not become dark became, he thought, even whiter than before. This discoloration advanced very gradually and continually for several months; he was not quite clear how long; sometimes saying that it was about six months, and at other times that it was a year or even eighteen months. But it seems clear that after a certain time the darkening process stopped, and since that time, now certainly five years, if not more, the skin remained unaltered, and presented the same characters as when he was admitted into hospital in 1858. During this change of color he appears to have had good health; he continued to follow his occupation, and to drink as before from half to three-quarters of a pint of gin daily. There seems to have been no general weakness, impairment of nutrition, or anæmia, until about four months before death.

In the summer of 1858 he began to feel ill and weak, and to lose his appetite, and in August he observed that the abdomen had swollen.

When admitted in October he presented a very singular appearance, from the extreme darkening of great part of the skin. The epithets "bronzed skin," or "mulatto skin," might perhaps be applied to it, and certainly would not exaggerate its intensity. The dark tint was uniform, or with slight variations of tint over the face, neck, shoulders, and arms; but over the trunk, and especially over the abdomen, it was diversified with irregular white patches, varying in size from one to four inches in diameter. It was uncertain whether these patches were whiter than natural. The scrotum gave the best example both of the dark color and of the white patches. Over the upper part of the thighs the skin was also dark, with some small white patches; towards the knees the dark color lessened, and below the knees the skin looked of a natural tint. The skin had its ordinary elasticity and sensibility. There was a little pigment on the conjunctiva, and a dark patch on the mucous membrane of the lips.

The conjunctiva were also slightly yellow, and the urine contained a small quantity of bile pigment; but the discoloration of the skin was not like that of *Melans fetoræ*, to say nothing of the white patches being altogether opposed to the hypothesis that the dark tint could be attributed to bile pigment.

In other respects the patient presented the usual symptoms of contracted liver with ascites, and with very scanty and deeply pigmented (red and pink) non-alkaline urine. The lungs were healthy; the arteries at the wrist rigid; the heart was pushed up by the ascites, and there were extremely faint obstructive and regurgitant murmurs over the aortic valves. The nervous system was unaffected.

Paracentesis was employed, and eighteen pints of fluid drawn off; but the fluid collected again very rapidly; and in spite of various remedies the patient sank and died on the 10th of November. During life the blood was examined microscopically by Dr. Harley, who found no excess of white corpuscles, and no free pigment; the red corpuscles were "large, flabby, and dingy-looking;" blood crystals could not be obtained.

This patient had been regarded with much interest during life, as it was supposed to be a marked case of *Morbus Addisonii*. After death the microscopic characters of the skin were found by Dr. Harley to correspond with those which have been previously noticed in cases of the so-called bronzed skin; there was, namely, great pigment deposits in the rete-mucosum. There was also pigment deposit beneath the epithelium of the peritoneum, forming several black patches. The supra-renal capsules were perfectly healthy, both in size, shape, macroscopic and microscopic characters. I requested Dr. Harley to examine them, and annex his report.

"Right supra-renal Capsules.—Normal in color; of healthy consistence; of usual size and shape; measures $2\frac{1}{2}$ inches in its longest diameter; $1\frac{1}{2}$ in height; $\frac{1}{2}$ at the thickest part. On section the medullary substance is beautifully well marked, of the healthy slate color, and firm consistence; no large cavity in it; no grumous matter; rows of small sinuses, distinct, full of healthy-looking blood; cortical portion well defined, running all round the medullary in a well-marked yellow ring; looks perfectly healthy."

"Left Capsules.—Normal in color, size, shape and consistence; measures $2\frac{1}{2}$ of an inch in longest diameter; $1\frac{1}{2}$ high. On section the medullary as well as the cortical substance appears perfectly healthy. Examined with the microscope, the columnar cell-masses of the cortical substance are beautifully seen; the medullary cellular matter was equally distinct; not the remotest trace of disease could be detected in either capsule."

I should mention that the capsules and a portion of the skin were modelled in wax by Mr. Tuson; and these models, as well as the capsules themselves, and a piece of skin preserved in spirit, are deposited in the museum of University College, and can be seen by any one. Dr. Harley also has made drawings of the microscopic appearance of the skin and capsules.

I need not detail the condition of the other organs at length; the liver weighed thirty-four ounces, and presented a fine example of the contracted hob-nail, or granular liver; the spleen weighed $14\frac{1}{2}$ ounces, its capsule was uniformly thickened, to the amount of about a quarter of an inch; on section it was firm, not evidently hemorrhagic, and without apparent enlargement of the Malpighian bodies; it was not examined microscopically. The kidneys $4\frac{1}{2}$ ounces each; they seemed healthy to the eye; on microscopic examination they were found to contain perhaps a slight excess of fibrous tissue, but the tubes and epithelium were quite healthy.

The facts which may be taken as certain in this case, are the existence of extensive pigment deposit in the rete-mucosum of the skin, without the slightest trace of disease of the supra-renal capsules. Whether the disease is to be received as an example of the *Morbus Addisonii*, and if so, whether it is sufficient to destroy the doctrine of the supposed necessary coincidence between pigment darkening of the skin and disease of the supra-renal capsules, are points in which the readers of this journal will judge for themselves. For my own part, I can see no distinction between the skin affection in this case and those cases recorded as examples of the *Morbus Addisonii*, in which the skin has been microscopically examined. The anatomical condition of the skin was the same; the depth of color, though great, was merely dependent on a high degree of the anatomical condition (*viz.* pigment deposit) and the fact that some patches of skin were devoid of color, is pointedly described by Dr. Addison as occurring in some of his patients. I therefore can come to no other conclusion than that this case shatters the doctrine of the necessary connection between this peculiar state of the skin and disease of the supra-renal capsules. It is true, however, that there was no anemia, nor any of those grave but obscure constitutional symptoms of weakness and general failure, which are described so carefully and emphatically by that eminent physician; and, therefore this case proves or disproves nothing as to the connection between disease of the supra-renal capsules and grave anemia with or without pigment changes in the skin.

ART. 72.—*Complete disorganization of both Supra-renal Capsules without discoloration of the Skin.* By MR. NOURIS F. DAVEY.

(*Medical Times and Gazette*, Jan. 6, 1850.)

Dr. Parke's case related in our last article shows that there may be great bronzing of the skin without disease of the supra-renal capsules. This case shows that the capsules may be completely destroyed and the skin remain of marble whiteness.

CASE.—R. A., *et.* 18 $\frac{1}{2}$ years, a servant-girl, reputed to be healthy, was confined, December, 22, 1857, of a child at the full period, and died rather unexpectedly two days afterwards.

Secio Cadaveris, December 30.—Body fat, of uniform marble whiteness; no putrefaction. Legs oedematous. Three quarters of an inch of subcutaneous fat. *Thorax*.—Four ounces of serum in pericardium. Heart enlarged, pale; fatty degeneration of muscular substance. Both ventricles dilated and hypertrophied, the left very much so; both full of fibrous clots. Valves healthy. Auricles: right dilated; left natural. Pleural cavities containing each about a pint of serum. Lungs pale, collapsed, gray; posterior lobes infiltrated with serum; otherwise healthy. Abdomen containing three or four pints of serum. Omentum, etc., very fat. Stomach quite healthy. Liver enlarged, pale; its convexity indented by the enlarged heart, fatty, containing much serum. Small intestines and colon healthy. Pancreas and spleen natural. Kidneys: left much enlarged, fatty; right less so. *Supra-renal Capsules*.—Left, large, dark gray in color externally; no trace of natural structure on section; its contents consisted wholly of dark reddish-brown, soft matter, mixed with yellowish, cheesy masses. Right, very small, pink, semi-transparent, and gelatinous in appearance, both without and within. They were preserved for microscopic examination. Uterus, pale, firm, natural in appearance on section; point of attachment of placenta seen at fundus. Ovaries and bladder healthy. Head not examined.

Upon examining the supra-renal capsules under the microscope with a good $\frac{1}{2}$, and also with a Ross's $\frac{1}{2}$, I could find no trace of the normal cell structure, the left consisting of dark amorphous matter mixed with abundant oil-globules, the right almost entirely of fatty matter.

Art. 73.—*On a Pruriginous Affection transmissible from poultry to the horse and to man.* By Dr. —.

(*Rev. Med.*, July, 1859; and *Dublin Hosp. Gaz.*, Sept. 15, 1859.)

This affection in birds presents the remarkable and novel feature of being transmissible to man and other animals, and it is caused by the presence of an arachnid, of the genus *Sarcoptes*, distinguished by M. Ch. Robin as "*Sarcoptes Mutans*." It is most commonly observed upon the claws, the comb, and around the bird's beak, and has seldom any obvious antecedent symptoms. It first appears in the form of white points and zig-zag lines, at the base of the comb. These are covered by very fine epidermal scales, which readily fall off; and the skin underneath is noticed to have a brown hue, which contrasts strikingly with the red color of the rest of the comb. After a period of from fifteen days to a month the affected part becomes thickened and darker colored, the lines occupy a more extended surface, and resemble the ridges noticed in common itch; and at the termination of these lines the new described insect is found. Under the scaly diseased epiderm small granulations form, resembling little reddish-brown papules, which thicken the comb, and render its tissues hard. At a more advanced stage the feathers at the top of the head and around the beak become greatly altered, lose their brilliancy, turn white, are atrophied, and surrounded at their lower parts by thickened epidermal scales; they are finally lost, by their free ends curling up and disappearing in the accumulated epiderm and new secretion, which form a crust around them. At this stage the head and upper part of the neck of the fowl present a very peculiar aspect: the feathers have fallen, the comb is brown, its surface knobbed, its base thickened, and it is covered by white scaly crusts, which, when detached, leave surfaces resembling that of pityriasis.

The affection, instead of appearing, as described, on the head, may attack the claws. At first there is a whitish and powdery appearance noticed between the toes, afterwards this increases greatly in quantity, and forms evident crusts. The birds do not appear to suffer much as yet in health, and the disease may remain very stationary for a month or two; but at last it slowly progresses; the scales fall off, and in their stead a concrete grayish exudation forms, which finally assumes the appearance of grains as large as a nut, and covers both the toes and legs. In this concrete matter great numbers of the new insect described are to be always found.

When once developed, the disease rapidly propagates by contagion, and this

has been proved by direct experiment. For this purpose, contact with previously infected fowl is not even necessary; it is sufficient to keep birds as yet healthy for a time in the place where those already affected have been living.

Veterinary surgeons have been long familiar with the fact that horses in farm yards along with hens or pigeons, are liable to acquire a pruriginous disease which they call, from its origin, "Phthyriasis of fowl." M. H. Bauley has published a full description of this affection, which is well known, but of which the origin, although ascribed to a parasitic disease which extended from the bird to the horse, was not recognized until the *Sarcoptes Mutans* was discovered and described. To demonstrate a connection between this cause and the phthyriasis of the horse, the parasite from the fowl has been placed on the skin of the latter animal, and a violent pruriginous disease thereby produced, having all the characters of the well known disease as it occurs in horses who have contracted the affection by living in fowl-yards.

The transmissibility of the insect to the human skin has been proved by direct experiment; and the writer states that "amongst girls in farm-yards he has often noticed both the arms and legs attacked by an eruption which they mistake for common itch, but which he ascribes to this new sarcoptes."

Note by Translator.—Unfortunately, all scientific description is wanting, and we are quite ignorant what difference, if any, exists between this new insect and the well known one found in many cases of common itch, if not in all; but it is fair to state that the necessary connection of itch and the sarcoptes insect, although usually admitted, and often asserted, is by no means yet proven in a satisfactory manner. One remarkable fact in itch is not yet accounted for—namely, why, if caused by an insect such as the sarcoptes, it so rarely or never recurs a second time in the same subject. The translator of this notice collected the histories of upwards of one hundred cases of itch, and in none was there ever a single instance of recurrence. If the sarcoptes, or any insect, were the entire cause, this fact would, so far from being anything like a rule, be the exception. Again, the number of insects and of itch-spots do not seem at all proportional—a fact that has been often noticed.

In conclusion, the translator would refer to Mond's Medical Works for what appears to have been the original description of the itch insect, there fully described by Dr. Bonomi, an Italian—in honor which has since been contested by more modern describers, who have quite forgotten Bonomi's claims.

ART. 74.—On Amyloid Corpuscles as natural productions on the Surface of the Skin. By M. L. Lurs.

(*Gaz. Méd. de Paris*, No. 1, 1859, *North Am. Med.-Chir. Rev.*, July, 1859.)

In October, 1853, Virchow pointed out to the *Académie de Sciences* of Paris the existence of a particular substance in the human body, giving rise to the same chemical reactions as vegetable cellulose. This discovery was confirmed by Carter, of Edinburgh (1855 and 1858), and the result of the researches of these two observers was, that amyloid corpuscles were found in nearly all histological tissues. Virchow considered this substance a degeneration, a pathological condition. Carter, on the contrary, believed it to be a normal production, connected with the regular exercise of physiological phenomena. It is interesting to compare these investigations with the discoveries made by M. Cl. Bernard in regard to the sugar-forming substance, and to trace thus an additional resemblance between the phenomena which take place in the animal economy, and those which are observed in the vegetable organism.

In a memoir read before the *Société de Biologie*, M. Luy's has endeavored to prove—1. That the skin is endowed, in its physiological and pathological condition, as all other tissues of the organism, with the property of producing amyloid corpuscles. Carter pointed out their existence only in certain cases of ichthyosis, in the deep layers of the dermis, and consequently believed that their presence in these cases was owing to a morbid state. 2. That these corpuscles present the reactions of amyloid substances.

The amyloid corpuscles are obtained by scraping the surface of the moistened skin with the back of a scalpel. They are more abundant on the nape of the

neck, and on the scalp, than anywhere else. The epithelial lamellæ, which the comb or brush removes, are literally covered with a great quantity of these very corpuscles. The author has convinced himself, by careful experiments, that they came neither from the dust suspended in the atmosphere, nor from the starched linen worn on the body. The fact that amyloid corpuscles exist on the surface of the skin of the fetus, at the moment when it leaves the uterine cavity, can be considered decisive. The corpuscles derived from this source have served to establish the typical characters.

The amyloid corpuscles are numerous; their dimensions vary from the hundredth to the four hundredth of a millimetre; transparent, pale, of disk-like form, resembling that of a ship biscuit, depressed in the centre, and appearing, consequently, slightly biconcave; homogeneous, of even fracture, and containing no cavity.

M. Luy's has found them to possess the following chemical characters, which have been confirmed by the researches of M. Berthelot:—

They are insoluble in cold water, ether, in absolute alcohol, either cold or on heating, in spirits of turpentine, and in ammonia. After having been subjected to contact with these substances they are always susceptible of being colored by iodine. In a solution of potassa or soda they swell, and become paler. Iodine gives them instantaneously a dark violet, nearly black color; on addition of sulphuric acid, the color changes to a clear blue.

If corpuscles, thus darkened by iodine, are heated in a little water, they become paler as the heat of the liquid increases, and disappear entirely on ebullition; when the temperature afterwards decreases again, they reappear gradually with their primitive color. If corpuscles, colored by iodine, are subjected to the action of dry heat, they assume a sienna-red color.

Although this substance, in the very small proportions in which it was obtained from the skin of the fetus, has not yet given rise, in the hands of M. Luy's, to the characteristic reactions of starchy matter, the formation of sugar, the author believes himself, nevertheless, authorized in saying that it approaches and presents the greatest analogies with vegetable starch.

The mode of formation, and the use of this amyloid substance, have not yet been ascertained, and demands further researches.

ART. 75.—On *Dracunculus* in Bombay. By Mr. H. J. CARTER.

(Trans. of Med. and Phys. Soc. of Bombay, No. 4, new series, 1859.)

In this paper Mr. Carter adduces further evidence to show that the alimentary canal is of the same construction in the young and old *Dracunculus* as in many species (seventeen at least) of microscopic *Filarie*, which abound in myriads in the salt water of the marshes and main-drain, in the fresh water tanks, and in the gelatinous Algae which abound in the neighborhood of Bombay, in the rainy monsoon. He also shows that the ovise of the adult *Dracunculus* is as symmetrical in its two halves as the double ovise (so called "uterus") of the microscopic species, but from want of a vaginal outlet, is a uniform continuous tube, the diminished extremities of which resemble the diminished extremities of the double ovise, which are in fact the ovaries; that the bursting forth of the ovise, therefore, in *dracunculus*, is an inevitable consequence, and has its parallel, according to Van Beneden, in the bursting forth of the "matrix," or so-called "uterus," under corresponding circumstances (that is when it becomes distended with ova) in the Cestoid Entozoa, *Tenia solium*; that the œsophagus in *Dracunculus* being of the same construction as that of the microscopic *Filarie*, is therefore, probably provided with an exsertile point, which enables it to bore its way through the tissues, after the manner of *Cysticercus*, which is also similarly provided for this purpose; and that this might enable the young of the microscopic species to pass into the human body through the skin direct, or indirectly through the ducts of the sudorific glands, the latter being much larger in calibre (viz., 1-1200th of an inch, than the young *Filarie*, which are frequently not wider than a human blood-globule; that from what we now know of parthenogenesis or virgin-generation, the young female microscopic worm might pass into the body already prepared to produce a new brood

before the generative organs can even be detected, as Mr. J. Lubbock has proved,* by showing that the ovaries of *Daphnia* may throw off a number of buds at one time, and a number of eggs at another, both of which may repeat the individual, but probably the latter only (which requires impregnation) can keep up the race; that some of the microscopic *Filarie* above alluded to have two and four minute papillary eminences projecting from their heads respectively, two of which are larger than the other two, which approximates them still closer to *Dracunculus*; and lastly, that the microscopic *Filarie* not only seek a habitat, viz., the gelatinous Algae and decomposing cells of vegetable matter where they can obtain nitrogenous food and elements of nutrition like those afforded by the human body, but that it has occurred to the author frequently to find a *Nais* (whose habitat also is the *Glaucocapsa* during the rainy weather) with its peritoneal cavity containing one or more microscopic *Filarie*, equal in size to those which are dwelling in the same Alga.

"It is true that we have not the means of feeding either man or animals with the young microscopic *Filarie*, to determine if this would be followed by the production of *Dracunculus*, as the abundance of *Cysticercus* in "measly pork" has enabled Kuchenmeister, Van Beneden, Siebold, and others, to prove that the latter, when taken internally, are productive of *Tenia* or tape-worm; nor would this be likely to succeed, if we did possess such means, since it is more than probable that the embryo which produces *Dracunculus*, whatever it may be, enters through the surface of the body. Neither should we be justified in plastering mud over the human body to satisfy our curiosity in this respect, knowing the pain which *Dracunculus* occasions, while the experiment seems to be already performed to our hands, as related in my "Note" under reference, where it is shown that out of a school of fifty boys bathing and dabbling more or less throughout the day in a small pond in their enclosure, whose muddy sediment swarmed with the so-called "tank-worm," not less than twenty-one in one year had had *Dracunculus* in more or less plurality, while such was not only not the case in any of the other schools of the island, but in the school of which I have had medical charge for more than ten years, with an average number of 346 children present, only two or three cases have occurred during that time; and microscopic *Filarie* do not exist, so far as I have been able to ascertain, in the sedimentary deposit of the tank in their enclosure, from which the children of this school are solely supplied with bathing water.

"I have only now to add, in support of the inference conveyed by the above remarks respecting the origin of *Dracunculus*, that Professor Siebold took the larvæ or caterpillars of *Yponomeuta cognatella* and other lepidopterous insects, and, having placed them in wet mould which abounded with the embryos of *Merina allucans*, a worm closely allied to *Gordius*, found, in every instance, that after twenty-four hours the larvæ became more or less infected with these embryos, which had penetrated into their bodies; while the larvæ of *Yponomeuta* being transparent, enabled this sagacious observer to ascertain, by aid of the microscope, that they did not contain any of these embryos before the experiment of bringing the two into contact with each other was performed. Leaps also, while studying the *Termites*, found whole nests destroyed by the embryos of a nematoid worm, just like our microscopic *Filarie*, penetrating their bodies and becoming developed in the peritoneal cavity, as in the instance above-mentioned in *Nais*. If, after this, the origin and mode of introduction of *Dracunculus* into the human body be doubted, I can only reply, that I shall be happy to see a better explanation of it. The facts above stated appear to me as conclusive as those of *Cysticercus* producing *Tenia* or tape-worm; and therefore it remains only to determine which of the microscopic *Filarie* produces *Dracunculus* in Bombay—a point which the marked forms of these worms respectively might be expected to render not difficult of demonstration. Indeed, it so happens that the so-called 'tank-worm' (*Uvulabest palustris*, mihi), which I have taken from the 'bathing-pool' of the school men-

* 'Phil. Trans.' 1837.

† A holder on by the tail, which is the character common to all these microscopic *Filarie*.

tioned, as well as from other pools, tanks, and collections of dirty fresh water in the island generally, comes nearest to *Dracunculus*. The largest specimens are one-sixth of an inch long, bilabiate, with an exsertile, sharp-pointed oesophagus, the hepatic sheath ending some distance from the termination of the intestine; the vulva opens in the female a little in front of the middle of the body, and the anus posteriorly, just before the body terminates suddenly in a whip-like tail, which varies in length, being sometimes almost abortive and curved upon itself. The penis in the male is exsertile from the anus, very nearly close to the posterior extremity of the body, which is so obtuse, as to be almost truncated. The tail of the young is semi-geniculated at the base, and there is a gland close to the anus, as in the young *Dracunculus*."

ART. 76.—On the Use of White Paint in some Cutaneous Maladies.

By Mr. ALFRED FREER.

(*Lancet*, June 16, 1859.)

"I first became acquainted," says Mr. Freer, "with the great efficacy of white paint in the treatment of erysipelas by seeing it used by my late father and by my brother. It is, indeed, in this disease that the most striking benefit results from its application. I have never yet met with a case of this nature where it has not done immense good. I find it far superior to lead lotions, mucilage, hot fomentations, nitrate of silver, or collodion. After erysipelas, the paint proves of the greatest service perhaps in eczema in its several forms. In chronic eczematous eruptions of the aged it affords much comfort, and often speedily effects a cure. Of late years I have extended its employment to other complaints of the skin, including herpes in its several forms. I have tried it in some cases of smallpox, with the view of diminishing the number of vesicles on the face, and of controlling their size. The latter indication it seems likely to fulfil; but I cannot speak with confidence about the former, the papules being already numerous at the time of my visit. I have also used it in several cases of carbuncle and furuncle. The first was in an instance of a huge carbuncle, situated on the loin of a man, and rapidly extending, notwithstanding free incisions, linseed poultices, and appropriate constitutional treatment. I applied a thick, wide circle of paint round the swelling, and dressed with resin ointment and cotton wool. There was no advance of the disease from that time, the centre rapidly broke up, and recovery took place. It is, however, probable, that the omission of the warm poultice may have contributed to the improvement, for I have often observed that warm poultices, however well made, seem to foster and spread carbuncular inflammations.

"The paint seems to act in two ways: first, and chiefly, as an efficient excluder of the air—that great irritant to the cutaneous surface when disordered; and, secondly, as a direct sedative to the sentient nerve filaments, rendering them less prone to become involved in inflammatory action. In boils it relieves the painful tension, and favors resolution. In some forms of painful ulcers of the leg, of a small size, it gives great relief. In galling of the skin, where anasarca is present, it is also of use, and is the best application that we have in burns of the first and second degree. But it is in erysipelas that its triumph is most manifest; the patient soon finds the comfort of it; the tight shining skin soon becomes wrinkled and shrunken; indeed, the inflammation very rarely extends after the second or third painting.

"All my friends to whom I have recommended the pigmentum album speak highly of it; and one, who is a surgeon in the Peninsular and Oriental Company's service, has used it for the last two years with great success. The manner of applying it is by means of a feather, painting the affected parts and a little beyond, and laying on a fresh coat every two hours or so, until a thick layer is obtained, and then sufficiently often to maintain a covering. In erysipelas, it peels off in a week or so with the shed cuticle, leaving beneath a smooth, clean, healthy surface. Patients are struck with the benefit they derive from its employment."

PART II.—SURGERY.

SECT. I.—GENERAL QUESTIONS IN SURGERY.

(A) CONCERNING INFLAMMATION.

ART. 77.—*Burn by the rays of the sun.*

By Mr. CUTLER, Surgeon to St. George's Hospital.

(*British Med. Journal*, July 23, 1859.)

IN his treatise on burns ('*Leçons Orales*'), Dupuytren mentions the solar heat as being occasionally the cause of severe burns, especially in tropical countries. "Many cases," he says, "are reported of persons who, having fallen asleep in the open air, have had various parts of the body burnt by the sun. In these cases violent inflammation occurred, promptly followed by gangrene, with death on the fourth or fifth day." He does not cite any instance or give any reference. In this country, accidents of this kind are especially rare.

CASE.—A little boy, *æt.* 10, was admitted into hospital on July 12th, severely scorched by the intense heat of the sun on that day. It appeared that he had been bathing, and, not having a towel, had amused himself by coming out of the water occasionally to bask in the sun, and then plunging in again. He had done this twice without feeling the worse for it; but the third time he went into the water, he felt a stinging, burning sensation over the whole of his body, which soon amounted to intense pain.

On being admitted, there was found what the French call "a burn of the first degree," or a scorched state of the integument over the whole of the back from the shoulders to the buttocks; and on the left shoulder a large bulla beneath the cuticle. The pain was great, and there was much tenderness to the touch.

He was treated by the application of rags, wetted with Goulard water, over the whole of the scorched parts: and when last seen (July 15th), was rapidly recovering, the redness beginning to fade, and the parts becoming less tender. There were no constitutional symptoms, and there can be little doubt of his speedy recovery.

(B) CONCERNING TUMORS.

ART. 78.—*Cod-liver Oil in Cancer.* By Mr. J. ZACHARIAE LAWRENCE.

(*Medical Times and Gazette*, June 25, 1859.)

It would be but unprofitable to reopen at any length the question of the local or constitutional nature of cancer; but as the latter supposition forms the basis of the remedy proposed, it is essential to briefly recapitulate the arguments on either side.

That cancer is a local disease is asserted on the grounds:—

1. That in some (confessedly purely exceptional) cases, cancers have been removed and have not returned (query, not ultimately?).
2. The marked predilection the disease has to fix itself on special parts, especially the breast and the uterus, and in certain cases (more especially of epithelioma) there to remain without any further extension to other parts of the body.

That cancer is a constitutional disease is maintained on the grounds:—

1. The tendency it has to infect the most multifarious parts of the body, in certain characteristic (so called "acute") cases, with a rapidity wholly inexplicable, but as a result of a general diathetic tendency. 2. The fatal recurrence of cancerous tumors after the most complete removals, either *in situ*, or what is, perhaps, still more to the point, in parts quite remote from the original deposit—and that frequently after a period of apparent cure. 3. The marked constitutional symptoms, often independent of any adequate local explanation.

If we now turn our attention to the treatment of cancer, we shall find that this has, in the great majority of cases, been of a purely local nature, having for its object the removal of the primary tumor. But were we once to make up our minds that cancer is as truly a constitutional disease, as say phthisis, it would inevitably follow that any local treatment of the disease must as a curative agent prove utterly abortive. And such is truly the result of all experience on this point, and that of the most extensive character. Of all the cancer patients who have submitted to operations, whether by knife or caustic, how many have been cured? Of a number of cases of cancer of which Mr. Lawrence has watched the progress, he never saw a single one in whom the disease did not, sooner or later, return. It is perfectly true that the interval between the operation and the recurrence is often marked by an unwonted degree of vigor and health in the patient (even after the removal of cancers of rapid developmental power), but this he regards as another cogent reason for the constitutional nature of the disease. These apparent cures are what form the basis of the testimonials of the cancer-quacks.

The remedy which the author suggests is cod-liver oil, and he founds his suggestion on the following considerations:—

1. That it has proved of the most signal utility in a disease which bears many points of resemblance to cancer—scrofula (and its sub-species, phthisis). Both diseases are characterized by extreme wasting of the body—both by deposits of a morbid material. 2. The general absence of fat observed in the bodies of persons who have died of cancer. 3. The large quantity of fat observed (both by the microscope and the naked eye) in cancerous (especially encephaloid) tumors; the tendency to fatty metamorphosis of cancer products.

It would appear from these facts that cancerous tumors have some special tendency to rob the body of an element which plays an important part in the due performance of its functions. The most marked case he has met with, of the apparent good effects of cod-liver oil in the treatment of cancer, is mentioned in his '*Diagnosis of Surgical Cancer*.' In this patient, a cancerous ulcer, measuring five inches by three inches, cicatrized completely up under its use, and her general health greatly improved.

(C) CONCERNING WOUNDS AND ULCERS.

ART. 79.—*Alcoholic Stimulants in Snake-bites.* By Dr. ADDY.

(*Boston Journal*, vol. lix. p. 68, 1859; and *Dublin Med. Press*, March 30, 1859.)

Dr. Addy writes, that on the western frontiers of the United States, where rattlesnakes are numerous, and where physicians are often called upon to treat poisonous wounds by these and other venomous reptiles, they almost exclusively rely upon alcoholic stimulants, given in quantities sufficient to produce intoxication. The patient is not considered safe until drunkenness is produced, this being regarded by the practitioners as evidence of the effects of the poison being overcome. Dr. Addy relates a case in which the patient was entirely relieved by the free use of whiskey.

ART. 80.—*Muriate of Ammonia in Snake-bite.* By Mr. P. MINAS, Sub-Assistant-Surgeon at Sirsa.

(*Indian Annals of Med. Science*, Jan. 1859.)

Mr. Minas's statements deserve attention. The mixture used (which has been first used by Mr. C. E. Raddock) is made by boiling muriate of ammonia

and chlorinated lime, of each ℥j in ℥xxiv of water, down to ℥xx and straining. Internally ℥j of the above mixture is given every half hour; after administering about a dozen doses, the interval is increased, and so continued for twenty-four hours, after which the quantity is decreased, and the interval prolonged, and is entirely omitted when sickness or pain in the stomach is complained of, and a feeling of coppery taste in the mouth comes on. For the first twenty-four hours great precaution ought to be taken *not to allow the patient to sleep*. I have treated forty cases of snake-bites and *not a single death has occurred*, although the symptoms were of very aggravated or dangerous nature—viz., great prostration, vomiting, coldness of the extremities and surface of the body, very small, feeble, faltering pulse, bleeding from the nose and fainting; yet these cases rallied and recovered. Again, during the month of August, a great number of deaths from snake-bite having occurred in this district, immediately, through the kind aid of our Deputy Commissioner, Mr. J. H. Oliver, I distributed the above mixture to all the Thannas, and about a dozen cases who applied to the Thannas have been reported by the thanadars of different villages as cured; and the villagers evince great confidence in this mixture."

We may add that Mr. Minas incises the bitten part, cauterizes with nitrate of silver, applies ligatures between the wound and the heart, &c.

ART. 81.—*On the different forms of Syphilitic Inoculation.*

By MR. HENRY LEE, Surgeon to King's College and Lock Hospital.

(*Proceedings of Royal Medical and Chir. Soc., June 28, 1859.*)

The object of this paper was to show that primary syphilis does not always commence in the same way. The "specific pustule" in which all syphilitic diseases were formerly said to originate was produced by one kind of syphilitic inoculation only, and that form was one which does not give rise to constitutional or secondary symptoms. As nearly all the experiments on syphilization had been performed so as to produce this pustular variety of the disease, it followed that no fresh constitutional syphilitic disease could be engendered by syphilization so practised. The kind of syphilitic sore which infects the system commences in a different way, and when not artificially irritated, it gives rise rather to the adhesive than to the suppurative form of inflammation. This form of disease Mr. Leo had shown, in 1856, to be, as a rule, not inoculable upon the person who had it. This view had more recently been confirmed by the researches of French surgeons. But although not ordinarily inoculable, like the suppurative form of the disease, yet it was capable of being rendered inoculable by artificial irritation. The results of the inoculation were, however, thin, uncertain in their results, producing little local irritation, and capable of being transmitted by successive inoculations a very limited number of times.

These observations applied only to inoculations performed upon the individuals who had at that time, or had previously had infecting sores.

The author described one kind of suppurating sore, which was surrounded by induration, which could not always be distinguished from the induration of the infecting sore. The induration could not, therefore, always be taken as the diagnostic mark of a sore which would infect the patient's system. The character of the secretion, however, gave the information which the induration did not always give. If care were taken to prevent any accidental cause of irritation, the secretion from an infecting sore would soon cease to be purulent; whereas, in the suppurating sore surrounded by induration (the phlegmonoid variety of suppurating sore), the secretion would continue as in other forms of suppurating sores, puriform to the last.

The number of cases of indurated sores, which had been said to have been inoculated by Dr. Sperino, and others, led to the conclusion that the two forms of disease now described had not been distinguished from each other. It was now ascertained that the infecting sore could not, as a rule, be inoculated upon the patient having it, whereas the phlegmonoid variety of the suppurating sore was, of all kinds, the most readily inoculated.

When inoculated artificially, it produced a pustule, containing well-formed pus, within forty-eight hours, and it was occasionally followed by an eruption

of a brick-red color, confined to one part of the body, disappearing spontaneously, and not recurring. This eruption was, therefore, certainly not syphilitic.

The various points in the paper were illustrated by experiments, drawings, and tables of cases.

(D) CONCERNING DISLOCATIONS OF BONES AND JOINTS.

ART. 82.—*On the treatment of Acute Periostitis.* By Mr. CURLING, Surgeon to the London Hospital.

(*Lancet*, Sept. 3, 1859.)

"The treatment recommended in acute periostitis," says Mr. Curling, "is local depletion with calomel and opium. Just at the onset of an attack, in a superficial bone like the tibia, this treatment may be of service, but in periostitis of a deep-seated bone, or if the inflammation do not speedily subside, such measures are not to be relied on. After matter has formed beneath the membrane, they are worse than useless. They weaken the patient without exerting any influence on the disease. There is then no way of averting serious mischief but by a free incision of the inflamed periosteum. Some of you evinced surprise when, in the case of L—, on my visit to the patient, though no fluctuation was perceptible, I determined at once to cut boldly through the thick vastus externus muscle down on the femur. There was, indeed, no other mode of preserving the bone. I was satisfied, after inquiring into the history of the case, and a careful examination of the limb, that the periosteum of the femur was acutely inflamed, and the incision revealed the presence of a small quantity of pus confined beneath it. The membrane was partially detached, and in a few hours extensive mischief would have ensued. This was arrested by the incision and the almost immediate cessation of suffering, the rapid subsidence of the inflammatory fever, and the speedy restoration to health, were the satisfactory results of this decisive treatment. What would have been the condition of the patient had the operation been delayed, may be learned from the second case. I did not see C— until after a large suppuration had taken place. The periosteum was extensively detached, and so distended by the pus effused beneath it, that when an opening was made, the matter gushed out with force over my clothes. In the first case, notwithstanding the early relief by an incision, slight death of bone ensued, but in the second case the necrosis was very extensive, and the inflammation having affected the cancellous tissue in the lower end of the tibia, the ankle-joint became at one time in jeopardy. Additional incisions were required, and under this treatment the urgent symptoms at length subsided, the inflammation in the periosteum and bone, and the necrosis, ceased to extend, the work of restoration was set up, and the case had a favorable issue."

CASE 1.—*Acute periostitis of the femur, followed by a small necrosis.*—*Martha L—*, a servant girl, *æt.* 14, was admitted into this hospital Oct. 27th, 1858. She stated that on the 23d she was carrying a pitcher of water up some steps, when, owing to impaired vision consequent on nebula on the cornea after smallpox, she slipped and sprained her right knee. She slept but little that night, and next day was hot and feverish, and unable to stand. The pain gradually became so acute that she could not bear to move her limb, and she continued to get worse until the period of her admission. At this time she had all the symptoms of acute sympathetic fever. The right lower extremity was much swollen, and she cried out with pain when the slightest pressure was made in the course of the femur, especially at its lower part. On the 28th I saw the patient for the first time. She had passed a sleepless night, and her symptoms were those above described. I could detect no fluctuation over the femur, but I at once determined to make an incision down to the bone at its lower and outer part. The integuments and vastus externus muscle were cut through, and the periosteum freely divided, when a small quantity of pus escaped, and it was ascertained by the finger that the membrane was detached from the bone. But little blood was lost. Pressure with a sponge was main-

tained for two hours, to prevent hæmorrhage, and a poultice was afterwards applied. She felt greatly relieved by the operation, and slept well the night afterwards. The febrile symptoms subsided quickly, and, supported with a generous diet, she soon regained her health. The wound, after discharging pus for a few days, gradually filled up, till at length only a small sinus was left. It was ascertained, on examination with a probe, that a small portion of the femur was denuded; but, as she was able to get about, she was discharged March 10th, 1859, and directed, if the wound remained unclosed, to apply again for admission in three months' time.

She was readmitted in the May following. She was then in good health, had grown stout, and the muscles of the thigh were well developed. There was a sinus furnishing a slight discharge, and a probe passed down to the femur seemed to enter an aperture and to grate against dead bone. On the 26th I cut down to the bone, chiselled away a small portion, so as to enlarge the aperture, and extracted two small pieces of dead bone from the interior. There was no bleeding of any moment. The wound afterwards closed up readily. She was discharged July 18th, the sinus being nearly healed.

Case 2.—*Acute periostitis of the tibia, followed by extensive necrosis.*—Mary Ann C.—, æt. 15, a girl of strumous appearance, but who had generally enjoyed good health, was admitted into the hospital on Feb. 14th, 1859. She stated that she had struck her left leg rather severely four days previously, since which it had become swollen, and excessively painful. Fomentations were ordered by the house-surgeon, and I saw her for the first time on the 17th. She was suffering from high constitutional fever. Her pulse was 200; indeed it could scarcely be counted: her tongue being dry and furrowed, and her cheeks flushed. She had no appetite whatever, and had not slept a minute for two nights. Her leg and ankle were greatly swollen and red in patches. There were great tension and extreme tenderness in the direction of the tibia. I at once made a long and free incision over the bone, when a large quantity of pus immediately escaped with considerable force. The finger, passed into the wound, came in contact with the tibia extensively denuded. She was greatly relieved by the incision, and the fever subsided rapidly afterwards. Abscesses, attended with a good deal of suffering and constitutional disturbance, formed subsequently over both malleoli. They were opened, and found to be connected with the bone. Her health became so much impaired, and her strength so reduced, and there was so much swelling above the ankle, with indications of the joint being affected, that amputation seemed to be called for. I had her placed, however, under the influence of chloroform, and then, on careful examination, finding the ligaments tolerably firm, and being unable to detect any crepitus, I determined to watch the case a little longer. Some improvement was shortly manifested, though her recovery was retarded by the formation of another abscess over the internal malleolus, which was also opened. The improvement afterwards continued, and by the end of March, under tonics and a generous diet, the patient's strength was greatly restored. The wounds closed up a good deal, leaving numerous sinuses leading down to dead bone, with healthy granulations. The head of the tibia appeared to have retained its healthy state, but the rest of the bone gradually became greatly enlarged, the thickening extending to the inner malleolus.

June 30th—I laid open some of the sinuses, chiselled away a quantity of soft new bone, and removed several pieces of dead bone. The necrosis was irregular, consisting, in some places, of a thin scale from the surface, in others, of nearly the whole thickness of the tibia encased in new bone, and in some places of small portions of the interior enclosed in the original bone, thickened, and soft in texture. One of the latter was extracted quite from the lower end of the tibia, and this communicated with the sinus over the internal malleolus. Since this operation, the patient has gone on extremely well. Her general health has improved; the sinus over the malleolus has closed up; the enlargement of the tibia has subsided, and the large wound has steadily healed up.

ART. 83.—*Cases of Acute Necrosis followed by Pyæmia.*
By Dr. STONE, Medical Registrar of St. Thomas's Hospital.

(*Medical Times and Gazette*, July 16 and 23, 1889.)

The general symptoms in these cases were such as would naturally mislead the observer. Indeed, this was so remarkably the case, that, although all were, strictly speaking, surgical cases, one was actually transferred from a surgical ward to the care of the physician, as being a case of typhoid fever. The other two were assigned to the physician, and treated and considered as acute rheumatism.

In the post-mortem examinations the extent of the local destruction is worthy of comment; the lower third of the radius, the lower two-thirds of the femur, and the whole shaft of the tibia are in the several cases involved. Small masses of pulmonary apoplexy appear in the lungs in all the cases. In the first and third this condition has run on to the formation of abscesses; in the second we have only the hæmorrhage, which, as co-existing with abundant evidence of suppuration in other organs, we seem justified in regarding as an early stage of the same morbid process. In all the cases there are abscesses of the kidneys; in two the muscular substance of the heart is infiltrated with pus, and more or less disorganized. In two cases, also, the muscular veins of the affected limb are stopped by adherent and decolorized clot, mixed with puriform fluid. In the first case this condition is also observed in the branches of the pulmonary artery leading to the apoplectic effusions. In one case the spleen is the seat of several purulent collections. The liver, in two cases, exhibits an appearance not fully explained, but frequently seen under such circumstances. "It is not impossible," says Dr. Stone, "that some of the obscure cases of pyæmia on record may have originated in some such local lesion as this, which has remained undetected." We give two of the three cases related:—

CASE I.—M. A.—æt. 15, servant. Admitted December 18th, 1888. A well-developed girl, of healthy aspect. Stated that she had always enjoyed good health previously to this illness. Had never had acute rheumatism, or other serious disease. The catamenia had only recently made their appearance, but were not in any way abnormal. Seems to have been in a good place, and not subject to any privation. Was well and at work until five days before her admission. At that date (December 13), she began to suffer from severe pain in the left forearm, especially on its posterior aspect. Some swelling appeared in the course of the day. Her general health does not seem to have been materially affected until the following morning (December 14). On that day she had a severe rigor, accompanied by vomiting, headache, pain in the chest, and cough. She took to her bed, and became rapidly worse, complaining of the same symptoms, with delirium, for the last night or two.

On admission, the general aspect was that of a case of acute rheumatism, with cardiac complication. As such it was taken in. It was not, however, thought possible or desirable to make a minute examination in the taking-in room. When seen in the ward, she was manifestly suffering from extensive and severe disease. The face was anxious and pale; the manner confused, and only partially conscious; although loud questions were rationally answered. Pulse 130, but only counted with difficulty from its feebleness. Respiration 44 per minute, accompanied with a moan. Skin cool, and not perspiring. Some ineffectual cough, and apparent inability to expectorate.

On examining the chest, loud rhonchus with large moist crepitation was audible in every part; and could also be felt as a thrill conveyed to the fingers. In an interval of respiration, the heart could be heard beating feebly, but with normal sound. There was no abnormal dulness, and no great tenderness of surface. The left arm and forearm were swelled and tense, rather red, and somewhat tender, though not acutely so. All the articular movements were easily performed, and without pain. Neither the wrist nor elbow-joints bore traces of rheumatic inflammation. The swelling was greatest in the middle and upper thirds of the forearm, of a doughy feel, giving no evidence of fluctuation.

tuation. The hand was not at all implicated. Wine and a stimulant mixture were given; but she sank the same evening, without alteration of symptoms.

On post-mortem examination, forty-two hours after death, the following morbid appearances were found:—

The left arm was much swelled, and rather hard, with patches of redness. The lower third of the radius, exclusive of the epiphysis, was denuded in nearly the whole of its extent, and surrounded by thick pus, which infiltrated the cellular and muscular tissue in the neighborhood. On making a section of the bone, its interior presented no unhealthy appearance. The muscular substance of the arm was generally healthy; but most of the superficial and muscular veins were filled with imperfectly-formed clots and puriform fluid. The wrist-joint and radial epiphysis were perfectly healthy, as was also the ulna. The brain was considerably congested, but otherwise healthy. Both lungs were slightly attached to the parietes by a layer of recent lymph. This was unequally deposited in patches, and much more abundant on the left than on the right side. The lungs were of ordinary size, and for the most part crepitant. They presented numerous patches of pulmonary apoplexy, from the size of a filbert downwards, irregularly scattered from apex to base. Some of them were a little decolorized at the margin, and the small branches of the pulmonary artery connected with most if not all of them were distended with adherent decolorized clot, mixed, in some cases, with a little pus-like fluid. A few distinct abscesses, from the size of a horsebean downwards, were scattered here and there.

The bronchial tubes contained a large quantity of frothy fluid. The pericardium was lined by recent lymph. It was more abundant on the surface of the heart than on the parietal layer, and was chiefly aggregated on the left side. The heart was of ordinary size, and firmly contracted. Its surface presented beneath the false membranes numerous spotty and mottled patches of intense congestion and extravasation; and, on making sections of the organ, many abscesses, from the size of a pea downwards, in various stages of formation, were found in the substance of the muscular parietes. The valves were healthy; the cavities contained a little partially decolorized conglutium. Peritoneum healthy. Liver of usual size, for the most part healthy. The surface presented several irregular pallid patches, surrounded by a broad, congested margin. On section, these patches were found to be composed of blocks of tissue presenting similar characters, and extending some little distance into the organ. Spleen, pancreas, stomach, intestines, and supra-renal capsules healthy. The kidneys presented a considerable number of minute abscesses surrounded by congestion, but the organs were otherwise healthy. On microscopic examination of the fluid in the pulmonary branches, it was found to consist chiefly of distinct pus cells, but in some instances of granular matter and debris of coagulated fibrine.

CASE 2.—M. H—, *æt.* 29, servant, admitted November 24th, 1858. A robust, healthy woman, above the middle height, was stated to be suffering from rheumatism, and taken into a medical ward in consequence. It appeared she had been out of health for a fortnight, and that before that time she had been suffering from mental anxiety and some privation. She had, however, been able to do her duties as household servant until a week before admission. She had at first complained of severe pain in the right thigh, which had soon after become swelled and tender. Two days before admission there had been some aggravation of the symptoms, but without any change in character. When taken in, she had the aspect of a person suffering from acute rheumatism, with considerable febrile symptoms. She was quite sensible, and complained most of pain in the right thigh. On examination, this was found to be swelled and puffy, of a doughy feel, and very tender. It could not be discovered whether the knee-joint was implicated, from the great oedema and tenderness. There was no circumscribed redness or fluctuation in any part. An anti-rheumatic treatment was adopted.

On the following day (25th) she was much worse. After a severe rigor, she became violently delirious, throwing the bedclothes off her, and making much noise.

On the morning of the 26th, the delirium gave way to signs of collapse.

These were accompanied by sudden and violent bronchitic symptoms; moist crepitation, both large and small, became audible in all parts of the chest, and could be distinctly heard when standing at the bedside. The face became livid and suffused; the respiration very rapid; pulse insensible at the wrist. She was able to speak sensibly and firmly until a few minutes before her death, which took place at noon of this day.

On post-mortem examination, twenty-four hours after death, the appearances were as follows:—

The right thigh appeared unusually plump. On cutting down to the bone, a large quantity of thin pus escaped. The femur, in the lower two-thirds of its shaft, was to a great extent denuded, and bathed in pus. The muscular tissue around was softened and infiltrated with pus. Many of the veins of the muscle were distended with conglutium, partly recent, partly buff-colored and adherent; they contained in many places thick sanious puriform fluid. The bone was not completely denuded, for here and there soft shaggy muscular fibres were still attached to its surface; and in one oval patch, about two inches long and one inch broad, was a softish granular deposit of recent bone, thin at the margins, increasing in thickness towards the centre, and at the latter point presenting a circular orifice about a quarter of an inch in diameter, the bottom of which was formed by a denuded shaft.

The joint and epiphysis were healthy. On making a vertical section of the shaft, the greater part of the medullary cavity was found to be occupied by soft lymph, puriform fluid, and conglutium.

The larger vessels of the thigh and their contents seemed healthy.

There was a shallow commencing bed sore over the sacrum.

Brain congested, with some increase of serum on its surface; otherwise healthy.

Pericardium and heart healthy.

The pleura were for the most part healthy, and free from old adhesions. The surface of both lungs, however, presented two or three largish, exceedingly thin, and scarcely visible patches of recently deposited lymph. Each of these was found to radiate from a central spot, in which the subjacent lung was elevated, and of a black color. On section, the black spots were found to be distinct apoplectic masses, from the size of half a marble downwards. There were about six in the left, and three or four in the right lung. All were clearly and wholly apoplectic; none was of the nature of an abscess, though one or two presented an imperfect buff-colored margin. In addition to these were some black elevated patches of extravasation in the subpleural tissue. The lungs were congested and oedematous, but crepitant. The bronchial tubes contained a good deal of secretion, and were somewhat congested.

Peritoneum healthy. The liver was of usual size, and for the most part healthy; its surface presented several irregular mottled patches of various sizes, which had a distinct port-wine color, together with several tracts of remarkable pallor. The congested condition was quite superficial; the pallor extended some little distance into the substance of the organ. Spleen, stomach, pancreas, intestines, and supra-renal capsules healthy. The kidneys were for the most part healthy; the right was very large, and presented a group of indistinct abscesses, altogether about as large as a hazel-nut; the suppurating part formed an irregular cylinder in the cortex, consisting of a number of smaller imperfect cylinders of suppuration, separate from each other and surrounded by congested margins. On separating the capsule from the diseased tract, the small abscesses abutting on the surface were laid open.

ART. 84.—*On the nutrition, inflammation, and ulceration of Articular Cartilages.*
By Mr. BARWELL, Assistant-Surgeon to Charing Cross Hospital.

(*Med. Chir. Review*, Oct., 1852.)

The results of a careful examination of the anatomy, physiology, and pathology of articular cartilages lead to the following conclusions:—

1st. That although in the articular cartilage itself there are no vessels, there

are situated immediately within the articular lamella a set of arteries destined to supply that cartilage with nutriment.

2d. That the articular lamella is composed of a finely tubular structure, which allows the nutrient fluid to find its way to the cartilage in finely divided streams.

3d. That the cartilage has no other source of nutriment.

4th. That the disease of the cartilage must not be estimated or named by the alterations which the hyaline structure undergoes, but by those which take place in the cells.

5th. That a certain number of these diseases are degenerative, but the larger number decrease or increase in the generative activity of the cells; the last of these attends all inflammatory diseases of the joints, and is itself inflammation.

6th. That the hyperemia of this inflammation is situated in the vessels immediately beneath the articular lamella, and it is this hyperemia which gives rise to the symptoms usually supposed to be produced by ulcerating cartilage.

7th. That simple degenerative diseases of the cartilage, as they produce no hyperemia, produce no symptoms.

(E) CONCERNING FRACTURES AND DISLOCATIONS.

ART. 85.—*On the non-reducibility of Fractures of the Long Bones.*

By M. GOSSELIN.

(*Gaz. Hebdom. de Méd. et Chir.*, No. 9 and 11, 1859; and *Méd.-Chir. Rev.*, Oct., 1859.)

M. Gosselin observes that so generally do the books lay down the law that all fractures are reducible, that a surgeon is at first surprised when he discovers the fallacy of the statement.

The following is a brief summary of the author's views on the subject:—

1. Even in cases in which there is no displacement, and there can be neither altered direction nor shortening, there may still be deformity, produced by a persistent increase of the size of the limb, at the level of, and to a certain distance above and below, the fracture. This deformity is of no great importance as long as the hypertrophied bone is not painful; but M. Gosselin has met with cases in which pain has persisted for years, and kept the patients from their occupations for a far longer period than is usually the case after fracture of the leg. He cites two of these cases.

2. *Muscular atrophy* is another cause of consecutive deformity, and sometimes of irreducible diminution in the strength of the limb. Nothing is more common than muscular atrophy after fracture, both in relation to the fractured segment of the limb, and to the segments above and below this. In almost every case a notable diminution of the whole of the limb is to be observed, except in the instance of fracture of the clavicle, which does not seem usually to be followed by muscular atrophy of the limb. The cause of this atrophy has been attributed by some to the compression exerted by apparatus, and by others to the prolonged immovability of the limb. M. Gosselin is disposed to search for the explanation in the diverted nutrition of the parts consequent upon the reparative process of the fracture. At all events, he is of opinion that the atrophy does not depend upon causes from the operation of which a surgeon can shield his patients. Thus far, any means he has tried to remove this condition—as electricity, shampooing, &c.—have been of little avail; but this may arise from the patients not desiring the amount of inconvenience they suffer sufficient to induce them to undergo a prolonged treatment.

The displacements consequent on a fracture offer some varieties: 1. The displacement, according to the direction of the limb, can usually be very well reduced, and it is in relation to it that the intervention of art is usually of utility. Still, the author refers to two cases of fracture of both bones of the leg, in which, in spite of every care, an angular displacement occurred; while certain cases of fracture of the fibula, whatever apparatus may be employed,

and whatever care taken, may be followed by a little abduction of the foot and slight elevation of its external border. 2. Displacements according to circumference are rarely irreducible. Still this is the case with a considerable number of fractures of the neck of the femur, with permanent penetration of the upper into the lower fragment, rotation outwards not being corrigible by other than imprudent attempts. M. Gosselin has likewise met with three cases of fracture of the leg in which irreducible displacement in the circumference has occurred. 3. Of the displacements which take place according to thickness, some are corrected easily and are not reproduced, others are reproduced again, until prevented by diffused pressure; and others, again, are irreducible, do what we will. In several instances the author has been unable, in fracture of the leg, to place, even with the aid of chloroform, an upper or lower fragment which projected beyond the other. This he attributes to the indentation of the fragments, the teeth not fitting into each other during the efforts at reduction, except as a mere matter of chance. 4. In considering the displacement according to length, besides the part played by muscular action, account has not been taken of the considerable crushing of the bone which results from the reciprocal pressure of the fragments. Here there will be shortening of the bone with impossibility of restoring it, the shortening even becoming augmented by subsequent absorption.

4. *Fractures near joints.*—The frequency of fractures near joints, and the great liability to them of subjects aged more than fifty years, has been long known; but M. Vollemier, by introducing the term *penetration* in relation to fractures of the lower end of the radius, MM. Hervey de Chégoin and Robert, by demonstrating such penetration in fractures of the neck of the femur, and M. Trélat, by calling attention to the intra-condylar fractures of the lower end of the femur, have given quite a new impulse to the study of this description of fractures. But still there is wanting a generalization of these new facts and clinical deductions. In fact, these various fractures resemble each other in their mechanism and their lesions. 1. The fracture of the extremity of a long bone may take the transverse direction, and be unaccompanied by any crushing of the spongy tissue. This is the only fracture, indeed, recognized prior to Vollemier's investigations, but it is the most rare. 2. More frequently one of the fragments becomes so forced into the substance of the other that the penetration remains permanent, the spongy substance of the penetrated fragment being completely crushed. If the two fragments be separated, an accidental cavity will be seen to be hollowed out by the penetrating one, the latter usually presenting an irregular or beehive surface, which enters into such cavity. This variety is especially met with at the cervix femoris, and at the lower end of the radius. 3. In other cases, one of the fragments presents the depression and crushing of the spongy tissue, but the other is not lodged in this depression, and is removed from it some millimetres in front or behind—penetration having in fact taken place at the time of the accident, but not being maintained. This disposition is especially met with in the radius, and is more rare than the preceding or subsequent variety. 4. One of the fragments, usually the shorter, may be comminutively fractured—the penetration being more forcible and deeper than in the preceding cases. This variety is observed in stelliform fracture of the radius, in fracture of the neck of the femur when the great trochanter is fractured at the same time, and in fracture of the lower end of the femur, when there are at the same time intra and supra-condylar fracture. To these cases a proper clinical import has not been given, and fractures are described just as formerly. But how are we to reduce fractures when their fragments are so solidly penetrated and ingrained as to be scarcely separable, even after death; or when one of the fragments has become shortened by crushing or by comminution? It is evident that surgery can do nothing here, and that the limb must remain enlarged and shortened, and that the action of the joint must be impaired.

5. *Therapeutical conclusions.*—It is not the author's object to deter from attempts at reduction of fractures. These, he admits, must be made, and in case of failure repeated. But when complete adaptation cannot be thus obtained, and the failure is explicable on one of the grounds mentioned, at-

tempts should not be multiplied, or complicated and expensive apparatus resorted to. In the author's opinion, a careful and attentive surgeon may obtain with the most simple appliances all possible results. The consecutive deformities or imperfections may be inevitable; and it is an illusion to suppose that in all cases they may be completely prevented.

ART. 86.—*On the use of India-rubber "Accumulators" in place of Pulleys in Dislocation.* By Mr. MAUNDER.

(*Medical Times and Gazette*, May 28, 1859.)

The pulleys, in order to be properly worked, require, besides the surgeon who takes charge of the limb and performs any requisite manipulations, the aid of one, two, or three assistants, who cannot always be obtained, and who, if obtained, sometimes employ their strength in a very awkward manner, and are not implicitly under the control of the surgeon. They are also a cumbersome, expensive apparatus, and consequently not always at hand when required. The power which the surgeon employs by means of the pulley, Mr. Maunder proposes to replace by India-rubber, in the form of "Hodge's Accumulator" (a), the advantages of which are that it is contained within very small compass, very portable, inexpensive, untiring, and makes the surgeon independent of the manual assistance of others. The extending power is contained in one or more India-rubber accumulators, fixed by one end to the dislocated limb, and by the other end to a hook attached by a cord to some body capable of resisting the extending force. By this means, extension is effected very gradually, avoiding all risk of sudden jerking and consequent laceration of tissues and organs; while the power may be increased or diminished to any extent with ease.



The woodcut represents an India-rubber accumulator, four inches in length, in a state of rest, which, when stretched twenty-four inches, exercises an extending force of thirty pounds upon the body to which it is attached. Mr. Maunder finds that a man cannot, without very great exertion, exercise more than an extending power equivalent to fifty pounds; thus it will be observed that, while each individual accumulator is entirely under the control of the surgeon, the required force may be readily obtained by increasing the number of accumulators.

The ordinary dislocation apparatus may still be used, the pulleys alone being replaced by the accumulators.

(F) CONCERNING INJURIES AND DISEASES OF THE VESSELS.

ART. 87.—*On the effects of Rupture of the internal and middle coats of Arteries.* By Dr. GEORGE SCOTT, of Southampton.

(*Med.-Chir. Rev.*, July, 1859.)

The conclusions to be drawn from several carefully conducted experiments are the following:—

1. "When the internal and middle coats of a healthy artery of a dead human subject or of a dead animal are ruptured, either regularly all around the vessel, or irregularly at different places, there occurs, in by far the majority of cases, no inversion or coiling up of the cut edges of the tunica; but these remain quite on a level with the other portions of the surface of the intima.

2. "Rupture of the inner coats of the arteries of healthy living dogs in the same way as described in the preceding paragraph is also, for the most part, unattended with any coiling up of the edges of the divided inner coats.

3. "Rupture of the intima and media of the arteries of healthy living dogs—whether in one line all around the vessel, or in several circular lines closely apposed to each other, or irregularly at different parts of the interior of the

artery—is not of itself sufficient to cause coagulation of the blood in, and consequent obstruction of, the vessel at the injured part.

4. "Inflammation of the arterial walls, of such a degree as to cause great thickening of the same, and consequently a considerable diminution in the calibre of the vessel, is insufficient of itself to cause coagulation of the blood in, and consequent obstruction of, the artery at the point inflamed.

"I also may venture to observe that it remains yet to be proved that there exists any disease of the arterial coats producing such an alteration in the texture and physical properties of the inner tunics as to cause the same, when ruptured, to curl up into the tube, and, by mechanically occluding the canal, induce coagulation of the blood at the injured part.

"The objection to these conclusions may be made that there are many well-authenticated cases recorded in medical literature of arterial obstruction caused by rupture of the inner and middle coats of the vessel. Of the fact that obstruction of the arteries did occur, of course there can be no doubt, but the alleged cause of the obstruction must, in my opinion, be called in question. In all such cases, save one, that I have been able to find recorded, the obstruction seems to me quite as easily explained on the embolic theory of coagulation sent from a distance, and becoming impacted in the arterial canal, as on the hypothesis of rupture of the inner coats of the vessel."

(c) CONCERNING OPERATIONS.

ART. 88.—*On painful Cicatrix and irritable Stump.*
By Mr. HANCOCK, Surgeon to Charing Cross Hospital.

(*Lancet*, June 23, 1859.)

Painful cicatrix occurs for the most part in situations where the skin is naturally in close contact with the periosteum, as over the lower portion of the fibula and inner surface of the tibia. The pre-existing wound may be painful, but as frequently not so, as long as it remains open; the pain coming on after the cicatrix is formed, when it becomes very severe. This, a point of some practical importance, led Mr. Hancock to pursue the treatment adopted in the following case, viz., "subcutaneous separation of the cicatrix from the periosteum," and the prevention of adhesion again taking place. These cicatrices have usually been dissected out; but the operation has proved very unsatisfactory, the relief being merely temporary, whilst the wound remains open, and being lost when it closes; and we may readily understand why this is the case when we recall the fact that the wound made in this operation must be filled up by granulations springing from the periosteum or bone, as the case may be—when we also remember the contraction which takes place in all cicatrices so formed, how the delicate periosteal nerves must be implicated, and how this contracting or contracted cicatrix must be continually dragged upon and irritated by every movement of the limb or muscles of the part.

CASE I.—Mrs. B—, when about thirty years of age, suffered from suppression of the catamenia, for which she was on several occasions bled in the leg. After the last bleeding, pain having occurred in the spot, leeches and lotions were employed, but without any beneficial result, the pain being much increased, and very severe. This continued for three years, during which she was treated by most of the first surgeons of the day for disease of the vein. She next consulted the late Mr. Liston, who at once excised the painful spot. The wound healed, and she remained free from pain for nearly fourteen years, when it returned precisely in the same spot, and continued for several weeks very severe, and not relieved by treatment; there was neither swelling nor redness. Another surgeon of great eminence was then consulted. He proposed to remove the cicatrix, which was done with benefit for sixteen months, when the pain returned. The cicatrix was again removed, but the relief only lasted six months. Removal of the cicatrix was again recommended; but the patient desiring another opinion, Mr. Chapman, of Hounslow, under whose care she was, kindly brought her to me.

Her sufferings at this time were so great that she was willing to undergo anything that held out a probability of cure. She could not sleep at night, and appeared quite worn out with pain. Upon hearing the history of her case, I was struck with the fact, that after the last two excisions she remained free from pain so long only as the resulting wounds were open and unhealed, but that directly the cicatrix was completed the pain returned; and when, upon examination of the part, I found that the skin, or rather the cicatrix, was adherent to the periosteum, and perfectly immovable, I concluded that her sufferings were due to this cause, and that they would not be alleviated until the parts were separated, and the new skin as far as possible placed in the same position as that of the surrounding integument. I, therefore, proposed that the skin should be separated from the periosteum by a subcutaneous incision, and that a reunion should be prevented by moving the skin backwards and forwards from day to day as might be deemed necessary. This was agreed to, and accordingly, assisted by Mr. Chapman, on Sept. 15th, 1857, I performed the operation with the common tenotomy knife, the part cut through being very hard, like cartilage. Mr. Chapman, who attended the case afterwards, informed me that some little inflammation followed, but that it was readily subdued; that the skin was prevented re-adhering, and that up to the present time the patient has remained in good health, and perfectly free from pain.

You will find the same treatment of service in cases of irritable and painful stump after amputation. This malady has been ascribed to various causes, as, for instance, the flaps being made too small in the flap, or the bone being left too long in the circular operation; retraction of the muscles and soft parts; implication of the nerve in the cicatrix; undue development of the bulb at the cut extremity of the nerve; exfoliation of bone and adhesion of the cicatrix to the bone, &c., &c. Where the integuments have been cut too short, or where there has been undue retraction of the soft parts, you have what is termed a conical stump, which you cannot mistake; where also there is exfoliation of bone, you may reasonably suspect its existence from the swelling and induration of the stump, whilst there will usually be redness and an opening with pouting granulation, marking the track to the exfoliating bone; but in other cases there is no sign of suffering for some time after the stump has healed, and, although the pain is almost unbearable, you will frequently be unable to detect anything abnormal either in the touch, color, or quantity of soft parts. The character of the pain almost always points to implication of the nerve in some way or other, and accordingly operative surgery has been chiefly directed to this point; division of the nerve, excision of the bulb and a portion of the nerve, and secondary amputation being the plans adopted.

Excision of the bulb of the nerve, however, does not always succeed. I have done it myself in some two or three cases, but with only temporary benefit; and from what I have observed, I am inclined to believe that in many instances the suffering is not so much induced by the nerve or its bulb, as by the adhesion and connection of the cicatrix by firm, unyielding cartilaginous structure to the periosteum or bone.

You will observe, in the following case, that this suffering occurs even though the cicatrix is not in immediate contact with the bone, but attached to it by an intervening mass or band; whilst the skin around the point of cicatrix corresponding to this mass is puckered in, there is a total absence of subcutaneous cellular and adipose tissue, present at other parts of the stump.

CASE 2.—M. H.—, *æt.* 30, admitted into Charing-cross Hospital, Nov. 30th, 1858. Had disease of the left knee-joint at ten years of age. At fourteen, the knee, being much swollen and very painful, was punctured, and a considerable quantity of blood escaped, but no matter. At sixteen, the catamenia first appeared; they left her for two years, and then returned, but with irregularity. At seventeen years of age she fell, and so much injured her knee that she went into the Royal Free Hospital, where the leg was amputated. The stump healed rapidly; but, accidentally falling upon the floor, she hurt the stump so much that it re-opened, and the bone protruded through the wound, which would not heal; the pain was intense, and subsequently about

two inches of bone were removed. After this she recovered, and remained well until about four years ago, when she felt as though the limb was entire—as if the blood were rushing to every part below the amputation, accompanied with great pain in the nerves. The pain gradually increased, and ten weeks since it became more violent than ever, and was almost unbearable; so much so, indeed, that she begged me to amputate the leg higher up.

Upon her admission, on the 30th November, I carefully examined the stump, and found that the cicatrix at one point was tied down, as it were, to the end of the bone by a dense band about three-quarters of an inch long, and that any pressure upon this point increased her sufferings to a great degree. The end of the nerve, enlarged into a considerable bulb, could easily be distinguished, attached by this band to the bone also, thus accounting for the pain which she experienced in the course of the nerve. I had, upon previous occasions, in other cases, dissected out these bulbs, but with so little success, that I was convinced that the sufferings could not depend so much upon them as was usually supposed; whilst the result of the case which I have just related to you led me to expect that if the cicatrix were released from the bone so as to permit free movement, the patient would be relieved from pain without another amputation. Accordingly, on the 11th December, the cicatrix was separated from the bone by a subcutaneous incision, the connecting medium being so dense as to resemble cartilage. The soft parts were moved gently over the bone for a short time every day until the wound was healed and all traces of tenderness had ceased. The stump, which had previously been puckered and baggy, became round and plump; the pain entirely ceased; and she left the hospital, cured, on the 14th January, 1859.

(H) CONCERNING INSTRUMENTS, ETC.

ART. 89.—*Water-glass, a partial substitute for Collodium.*

By Dr. KUCHENMEISTER.

(*Mem. a. d. Prax.*, III., 8; and *Med.-Chr. Rev.*, May, 1859.)

Preparation of water-glass. (Lehmann's Taschenbuch d. theore. Chem.) If ten parts of potassa are melted together with fifteen parts of powdered quartz, and one part of charcoal, a blackish-gray glass is obtained, which is soluble in five parts of water; on evaporating this solution, an opalescent, semi-fluid mass is formed, which has an alkaline taste, and reaction, and does not absorb carbonic acid from the air; by slow evaporation it is formed into a glassy mass of conchoidal fracture, unchangeable at the atmosphere; it is this water-glass $= 3\text{K.O.}8\text{SiO}_2$. A similar substance is obtained with soda.

The author has used this substance as an external application in cases of bee-sting, with an excellent result, and has found it to diminish the pain and swelling very promptly; he explains its efficacy partly by the circumstances that the alkaline water-glass neutralizes the acid of the bee's poison (formic acid), partly by the fact that on evaporating slowly on the skin—similar to collodium, but somewhat slower—it forms a smooth and even coating, which protects the wound from the entrance of air, dust, and other foreign substances. Water-glass may thus be usefully employed:—

1. In cases of bites and stings of such animals which introduce an acid poison into the wound, viz., bees, humble-bees, wasps, hornets, gnats, mosquitoes, bugs, toads, perhaps also snakes. But the author recommends the remedy particularly in cases in which ticks, sand-bugs, lepto autumnales, and crab-lies have bitten themselves into the skin, as the removal of the parasite is much facilitated by the application, the coat formed by the water-glass suffocating the animal by obstructing the tracheal openings which project from its body.

2. The application of water-glass proved also very efficacious in a case of erysipelatous inflammation of the hand in a child; in erysipelas ambulans of the face, the author has not been so successful with the remedy. Whether it could be used with advantage in mastitis, skin diseases of different nature, particularly those of the humid kind, or in tetter, with an acid reaction, remains to be ascertained; in herpes circinatus it is very useful.

3. Water-glass is one of the best means to cleanse the skin from tar, varnish, residues of plaster, etc.; it may perhaps be also usefully employed to clean the scalp in disease of the hair.

It is inferior to collodium in respect to tenacity, and is, therefore, less applicable in gaping wounds; in cases in which a coating is required to be durable if immersed in water, it cannot be used at all. In order to avoid its crumbling off, the coating ought to be renewed from time to time. It is preferable to collodium on account of the greater readiness with which it can be removed.

ART. 96.—*On the Use of Compressed Sponge as a Remedial Agent in the Treatment of various Strictures, &c.* By Dr. J. P. BATCHELDER.

(*New York Jour. of Medicine*, May, 1859.)

The author of this paper has, of late years, devoted much attention to the treatment of surgical affections by compressed sponge, but seems to place more confidence in the article than it probably deserves. The most remarkable portion of his paper is, that pertaining to the treatment of malignant tumors: one case of scirrhus breast, two of cancer of the lower jaw, and one case of cancerous inguinal glands being perfectly cured, while several other cases were much improved. For the details of these cases we must refer to his article, of which the following is a brief abstract:—

In preparing the plates of sponge, Dr. Batchelder uses a fine and dry article, and compresses it by means of a common copying letter-press, or a heavy weight, under which it is to be kept until wanted for use. The other form is that of a tent, which is made by transfixing a fine wet sponge with an awl, and wrapping it firmly with a cord or packthread; when it dries, the awl is removed, and the tent is ready for use; or the sponge is moistened with mucilage, and prepared in the same manner, being, when dry, trimmed smooth with the knife. The latter is applicable to cases in which the tent is difficult of introduction, and the moisture of the parts might produce its premature expansion, as in dilatation of the canal of the neck of the uterus. When employed in internal parts, the tent should be attached to a cord to facilitate its removal.

The author first applied compressed sponge, with marked success, to enlargement and abscesses of the female breast; and reports of cases, published in late years, fully confirm its utility. The object of the present paper is to point out the various surgical affections in which it may be employed.

1. *Dilatation of the canal of the cervix uteri for the relief of sterility, difficult menstruation, and other affections.*—The tent, prepared with mucilage, is carried up to the os with a pair of long-bladed forceps, or a stilet, constructed expressly for the purpose, and, by slight pressure upon its base, is made to enter the cervical canal. It should be removed every twenty-four hours to prevent irritating and offensive secretions, and the vagina should be well syringed with water. The speculum will sometimes be useful; and as the canal of the cervix is occasionally very small, it will, as a preliminary measure, be necessary to enlarge it with fine metallic dilators, until a small tent can be introduced. When the object is to induce premature labor, the tents should be worn continuously, and be gradually increased in size. In pregnancy, complicated with hemorrhage, when the os is partly open, but unyielding, and the labor is tardy, the tent, by making a good tampon, stops the flow of blood, excites the dilatation of the os, and also uterine contractions.

2. *Dilatation of sinuses.*—In most cases of sinuses, the sponge-tent, by producing a change in their lining membrane, and a free purulent discharge, effects a cure. From time to time the tent should be made larger.

3. *Anal fistule.*—In abscess of the ano-rectal region, a free and early incision should be made, and a sponge-tent introduced to favor the free discharge of pus and the healing of the cavity from the bottom. When the abscess has opened spontaneously, and formed an incomplete fistule, a tent introduced into the cavity fulfils the same indications, and, by keeping the external orifice open, prevents the collection of pus, which, by its pressure, would produce the absorption of the septum between the rectum and cavity of the abscess, and

thus producing an internal orifice, a complete fistula being formed. When, therefore, there is no internal opening, the method will be found successful.

4. *Diseased bone with fistulous passage.*—In most of the cases of caries or necrosis of the bones in which the author has tried the sponge-tent, a cure has resulted without resorting to the knife or scraping instruments. In a few weeks the sinus can be dilated to such an extent as to admit of the introduction of several fingers, or a pair of forceps, for the removal of the sequestrum or the ulcerated bone, by the repeated application of the sponge. Several cases of strumous or syphilitic enlargement of the bones have been cured by plates of compressed sponge, aided by appropriate constitutional remedies.

5-6. *Dilatation of the meatus auditorius, and affections of the nasal cavities and bones.*—In cases of contraction of the external auditory canal the sponge-tent may be used with advantage, as well as in ulceration, contraction, and other affections of the nasal bones and cavities.

7. *Dilatation of strictures of the rectum.*—The author mentions three cases of rectal stricture treated with the sponge-tent, one proving fatal, as the disease was malignant, the other two being cured. The tent should be prepared with mucilage, if there be much irritability, being used larger as occasion requires. When the irritability and sensitiveness of the part are great, it will be well to precede the use of the tents by anodyne suppositories.

8. *Internal piles.*—The tent introduced just within the rectum may prove useful in bleeding piles, or hemorrhage of this portion of the intestine.

9-10. *Stricture of the urethra and dilatation of the female urethra.*—In cases of urethral stricture a metallic sound should first be pressed against the resisting part; when, being withdrawn, a tube, containing a transfixed tent and a piston, is carried down, and, by pressure on the piston, the tent is made to enter the stricture. When it is firmly in place, a few drops of water, or, if there be irritability, of an anodyne solution, are passed down the tube to moisten the sponge. The cord attached to the tent should be guarded with a button to prevent its passing back into the bladder. It is best to allow the expulsive power of the bladder, in micturition, to remove the tent; should this not succeed, gentle traction may be made. When it is deemed necessary to dilate the female urethra for the removal of foreign bodies from the bladder, the sponge-tent will be found to answer every purpose.

11. *Morbid growths.*—The compressed sponge, by its firm and equable pressure, induces the absorbents to remove tumors, whether benign or malignant, and should be confined in its place by the bandage, both being kept constantly wet. In cases of malignant growths, if not removed entirely, they may be rendered harmless for years; and the author reports, in support of this opinion, a case of scirrhus tumor of the breast, completely cured in about two months; a case of scirrhus growth of the breast and a scirrhus nodule on the outer edge of the pectoralis major, in which the nodule entirely disappeared, and the tumor of the breast had greatly diminished, when the patient was lost sight of; a case of ulcerated malignant tumor of the breast, with well-marked cancerous cachexia, in which a sponge-tent was kept in the fistula, dilating it to a large size, with the result of a diminution of the tumor and a great improvement in the general health. The patient was lost sight of, but probably died. In three other cases of malignant disease of the breast it produced diminution of the tumors, and prolonged life. In two cases of malignant disease of the lower jaw (epulis?) both patients were cured. It has also been found useful in the removal of the callous edges of ulcers.

12. *Cancer of the penis, with enlarged glands of the groins.*—The penis was amputated, and the glands removed with the compressed sponge; the patient's health was much improved, and the cancerous cachexia disappeared.

13-14. *Swelled testicle and vegetations.*—The testicle or penis is to be turned up over the pubes, and retained in position by the spica bandage, which, with the sponge, is kept constantly wet. The author has great confidence in emesis in the case of swelled testicle, and in that of warty excrescences he draws off the urine with a flexible catheter, so as not to disturb the dressings.

15. *Non-malignant tumors.*—Enlarged lymphatic glands, especially buboes,

are speedily removed by this means. Dr. Batchelder states that in the last fifteen years he has had but two cases of suppurative bubo, and these were owing to the imprudence of the patients. In addition to the sponge and bandage, in these cases, he recommends a hernial truss with a glass pad and strong spring, the pressure being properly graduated.

16. *Enlarged joints*.—In cases of effusion within the joints from synovitis, or in effusion from any cause outside the joints, the sponge has succeeded, especially in the latter, better (in the author's hands) than any other means.

17. *Compressed sponge as a styptic*.—In wounds of certain arteries it is not always practicable to apply a ligature, and the surgeon relies, for a time at least, on compression. In regard to wounds of the palmar and plantar arteries, the author says: "The phenomena attending these wounds are often somewhat peculiar. The blood forced extensively into the surrounding cellular substance, perhaps under the aponeurosis, comes welling out from a considerable surface, which renders it quite difficult to find the wounded vessel. If this surface be scraped again and again with the handle of a scalpel, the extent from which the blood issues will be lessened down to a small space." Upon this he places a small piece of pointed compressed sponge, confining it by means of a compress and a roller, and flexes the arm at an acute angle, a position which renders pulsation at the wrist almost imperceptible.

18. *Pachydermatocele*.—This affection, first described by Dr. Mott, is congenital, and consists of a hypertrophous condition of the skin and subcutaneous cellular tissue. Dr. Batchelder has seen three cases of this disease, which were operated upon by Dr. Mott, and in all the affection returned. After its recurrence in one of these cases, in which the mass hung in folds on the side of the face, the author applied, not without some difficulty, the compressed sponge and roller. In about two months, the whole mass, excepting a small portion near the eye, which had resisted the treatment more than any other part, had become absorbed, and the patient, thinking the rest would disappear, ceased to consult the author. In a few months, however, he returned, the mass being larger than before. A renewed and persevering application of the same means effected a cure.

19. *Varicose Veins*.—In one case the author applied the compressed sponge over the internal saphenous vein, and confined it by a vulcanized India-rubber bandage. The dressings were worn only through the day, and had the effect of relieving the symptoms, and rendering the patient's locomotion much more comfortable. It is not stated whether a cure was effected.

(1) CONCERNING ANÆSTHETICS.

ART. 91.—*On Voltaic Narcotism*. By (1) Dr. RICHARDSON, Physician to the Royal Infirmary for Diseases of the Chest, &c.; and (2) Dr. A. WALLER, Physician to Queen's Hospital, Birmingham.

1. (*Medical Times and Gazette*, June 25, 1858)

2. (*Ibid.*, March 19, May 23, and July 30, 1858)

(1.) Since the appearance of his first paper, a notice of which will be found in our last volume (p. 267), Dr. Richardson has been steadily engaged in pursuing the same inquiry. He now writes:—

"Firstly, then, it may be accepted as a fact, that by the process I have suggested, such degree of local insensibility may be produced as shall enable the surgeon to perform a large number of operations without pain. I mean this as a general rule, open, as we have seen, to exceptions.

"This admitted, the question arises as to the mode by which the local anæsthesia is produced. My esteemed friend, Mr. Nunneley, of Leeds (in an essay published in the 'Transactions of the Provincial Medical Association' for 1849), has pointed out, by a variety of experiments, that the mere local application of narcotic solutions will produce a certain degree of local anæsthesia.

Nothing could be more conclusive than Mr. Nunneley's argument, and I have all along been alive to the fact of simple absorption as an important part of the process now being considered. The effect of the voltaic current, as I have employed it, makes the insensibility to extend more deeply, and renders it, as a general fact, more complete.

"As to the reason why a continuous current of electricity should exert the influence above named, the argument is simple enough. The current itself has no anæsthetic effect. That is certain; but it has the power of quickening the capillary circulation in the structures through which it is transmitted, and the absorption process is therefore more rapid and determinate. That various medicinal substances may be passed into animal bodies locally by the voltaic current was first suggested (as Dr. Althaus has been good enough to inform me, by Sir Humphry Davy; and Fabré Paraplat and many other experimentalists have endeavored since Davy's time to prove this by demonstration. Differences of opinion have thus been called forth; but the first and affirmative statements have never been disproved.

"That there should be differences of opinion from experiments conducted by different persons, is not difficult to believe by any one who will peruse those which I have described. These difficulties may depend on peculiarities in the subjects operated on; they may depend, and I confess this is more likely, on the ignorance which pervades the wisest of us, as to the influence of electricity on the organism, and on our further ignorance of the laws of the electrical force altogether.

"Turning to more common, but yet practical points, I observe that there are certain disadvantages in the process I have suggested which it would be unfair to suppress. The first disadvantage is, that the time required for the production of insensibility is long; the second, that some degree of pain is produced during the first stages of the application, which pain, however trifling, destroys the confidence of the patient; and thirdly, that the apparatus necessary is cumbersome. The production of vesication of skin, to which I have referred, as following the process, is also objectionable. This is produced by the chloroform.

"It will occur to many that the objections here noticed are all removable, and of this fact there can be little doubt. In the present initiatory step, I neither claim for the apparatus nor the narcotic solutions employed any particular favor; it is sufficient at first to introduce a principle; details may be left to time and experiment.

"I have been asked whether the plan now suggested has any advantage over the freezing process invented by my friend Dr. Arnott. The answer to the question is, that the freezing process is most ready in application and quicker in action, while the narcotic process produces deeper insensibility and no induration of tissue. The latter advantage is considerable in operations where structures have to be carefully dissected, as in the operation for strangulated hernia; but, in the main, the freezing process is, for the present, most practicable.

"Compared with chloroform in its character as a general anæsthetic, the plan of anæsthesia now offered is unfavorable, except in one particular—its absolute safety as regards life. But this advantage is so great, that, however trifling the risk of inhaling chloroform, I should prefer (were I the subject of an operation in which it was applicable) the local plan, notwithstanding its present incompleteness; and this, not from fear, but from the feeling that it is common prudence to avoid even a slight risk, when avoidance is as convenient as exposure. In fine, in the practice of anæsthesia, it is the correct rule to be conversant with all the means for producing insensibility, and to select the means by the case. Monomania is especially stupid in physic."

(2.) Dr. Waller is entirely at issue with Dr. Richardson. He holds:—

That insensibility from so-called voltaic narcotism is produced solely by the local absorption of the chloroform and aconite mixture.

That anæsthesia is produced with equal efficacy by the mere topical application of the narcotic mixture.

That the narcotic fluid generally produces inflammation and disorganization of the skin, and consequently that voltaic narcotism creates unfavorable complications in surgical operations.

That the insensibility is confined to the skin, and does not extend to the deeper-seated parts.

That its application is to be avoided in cut or abraded surfaces, or on the skin of infants where the cutis is very thin.

"It is from having inadvertently come across some of the effects of the remarkable action of chloroform, as an accelerator of absorption," says Dr. Waller, "that Dr. Richardson has been led to draw such erroneous conclusions respecting the so-called process of voltaic narcotism." And certainly this action of chloroform is very remarkable.

"In a memoir, recently laid before the Royal Society," says Dr. Waller, "I have examined into the action of various agencies which influence cutaneous absorption; and as it will shortly be published, I will only mention here some of the leading results at which I have arrived, and here described.

"My principal experiments on absorption have been made by applying to the skin solutions of different alkaloids, as atropia, strychnia, morphia, &c., watching carefully the symptoms of absorption, and noting particularly the effects produced on the pupil. By these means, the influence of age, of circulation, of innervation, &c., may be ascertained and accurately measured. I found a still more powerful influence than either of these on the rate of absorption exists in the nature of the menstruum, or vehicle of the alkaloid. The menstruum, with which I have experimented, are chloroform, alcohol, water, and turpentine. Chloroform I find to exert the greatest accelerating influence on cutaneous absorptions, of all those yet tried by me. Alcohol, on the contrary, I find to possess the greatest retarding action.

"With chloroform for example, I find that atropia will dilate the pupil after its simple topical application, in the space of from two to four minutes; whereas the same proportion of atropia in alcohol will produce no influence on the pupil, even after the lapse of thirty minutes and upwards. Water and spirits of turpentine, as vehicles, hold an intermediate place between chloroform and alcohol, or spirits of wine."

"Atropia is particularly well adapted to ascertain the exact influence of the various menstrua and other agencies on absorption. I have likewise found the same laws to obtain with aconite, morphia, strychnia, and many other alkaloids, and a solution of equal parts of these in chloroform, possesses so great an influence on absorption through the skin, that the simple application of some of the former will cause death in a few minutes; whereas an alcoholic solution of the same may be applied from thirty to forty minutes without any effects whatever. Thus, the same agent which is perfectly innocuous in one case becomes rapidly fatal in another. It was from having inadvertently come across some of the effects of this remarkable action of chloroform, as an accelerator of cutaneous absorption, that Dr. Richardson has been led to draw such erroneous conclusions respecting this so-called process of voltaic narcotism, which will remain as a remarkable instance in physiology of drawing hasty inferences on the one hand, and on the other of the advantages of eliminating all extraneous causes, and of reducing phenomena to their simplest expression before venturing to explain them."

ART. 92.—On *Anæsthetic agents*. By Dr. GLOVER.

(Lancet, Nov. 6, 1859.)

Many attempts have been made to substitute other anæsthetic agents for those commonly in use. The number of bodies possessed of anæsthetic properties is very numerous. They may be arranged as follows:—

1. Protoxide of azote, NO.
2. Carbonic oxide, CO; carbonic acid, CO₂.
3. Light carburetted hydrogen, CH₄; olefiant gas, C₂H₂.
4. Ethyle series: Alcohol, C₂H₅O+HO; sulphuric ether, C₂H₅O; nitric, C₂H₅O+NO₂; acetic ether, C₂H₅O+C₂H₃O₂; hydrochloric ether, C₂H₅; CHl and hydriodic, hydrobromic and formic ethers.
5. Acetyle series: Aldehyde, C₂H₅O+HO; Dutch liquid or chloride of olefiant gas, and doubtless the corresponding bromide and iodide; monochloruretted chloride of ethyle (see Dr. Snow).
6. Formyle series: Chloroform, bromoform, and iodoform.
7. Compounds of methyle, pyroxilie spirit or wood naphtha, C₂H₅O+HO; rock naphtha, C₂H₂; coal naphtha; formomethylal (uncertain composition); methylal, C₂HO, HO and 2C₂H₅O.
8. Turpentine, C₁₀H₈; benzoyle, C₁₂H₄; camphor, C₁₀H₈O; creosote, C₁₄H₁₀O.
9. Bisulphuret of carbon, CS₂.
10. Amylene C₁₀H₁₆.
11. False anæsthetics, as sulphuretted hydrogen, prussic acid, concine.
12. Mixed bodies, as oleum ethereum, chloric ether.
13. Acetone, C₃H₆O.*

Of all these bodies, only three are likely to enter into composition with ether and chloroform: these are the Dutch liquid, amylene, and formomethylal.

"The first," says Dr. Glover, "is the most likely to take the place of chloroform. It is a beautiful, colorless, and volatile fluid, which, in smell and taste, somewhat resembles chloroform. It is, however, more agreeable. I have tried it, and found it answer exceedingly well; and Mr. Nunneley, of Leeds, has especially studied its properties. He found it as powerful as chloroform, and more free from dangerous and disagreeable effects. Animals were quite as completely brought under the influence of the one as the other. Mr. Nunneley used it in several operations with perfect success; but if it can only be obtained at the enormous price which I paid a London druggist for it, its use can never become general. The substance amylene was found to produce perfect anæsthesia. Dr. Snow, after using it in a hundred and forty-four cases with success, had a death from it in an operation for fistula in ano; and, shortly after (July 30th, 1857), another death occurred in the hands of the same practitioner. The substance called formomethylal appears worthy of attention. I tried it on animals with perfect success; but in attempting its preparation in considerable quantity twice, formidable explosions occurred.

On the whole, then, practically, as far as our knowledge goes, the only anæsthetics likely to be of permanent use are ether and chloroform. Many have proposed the use of a mixture of the two, and different proportions have been recommended.

* It will be observed how much carbon all the true anæsthetics contain.

II.—SPECIAL QUESTIONS IN SURGERY.

(A) CONCERNING THE HEAD AND NECK.

ART. 93.—*Remarkable case of recovery after Fracture of the base of the Skull, and other very serious injury.* By Mr. HOLTHOUSE, Surgeon to the Westminster Hospital, &c.

(*Lancet*, Aug. 6, 1859.)

In this case, not only was the base of the skull fractured, but the head of the right thigh bone was driven through the acetabulum into the pelvis, and there was compound fracture of the leg requiring amputation—a triple lesion, either part of which was sufficient, under ordinary circumstances, to destroy life.

CASE—Edmund C—, *æt.* 28, was carried into the Westminster Hospital, on the 13th of last May, having fallen from a height of 60 or 70 feet, from the giving way of some scaffolding at the Westminster Palace Hotel. When first admitted, he was unconscious; there were bleeding from the left ear, and dilatation of the left pupil; subsequently slight ptosis of the upper lid of the same side was observed; there was also a fracture of the pelvis of the right side, the right lower limb was shortened and everted, simulating a fracture of the neck of the femur, and a compound fracture of the left tibia, with laceration of the posterior tibial artery, existed. Besides the ptosis and dilatation of the pupil, there was no other paralytic symptom.

For the first few days the patient seemed scarcely recovered from the shock; his pulse was exceedingly feeble, and his death was expected daily. The head was shaved, wet lint applied to it, a Liston's splint was placed on the outer side of the limb with a cradle over the leg, and a pledget of wet lint to the wound in front, which communicated with the fractured tibia. His diet was strong beef-teen and brandy. A new set of symptoms now appeared; the patient became violently delirious, or rather maniacal, shouting and screaming, and tearing off his bandages, which he said gave him so much pain that he could not bear them. Nothing could be kept on his head, which appeared very tender on pressure. Hemorrhage also, to a small extent, took place from the wound in the leg, which was easily repressed by pressure, but it continued to recur at intervals, till the 7th of June, when the posterior tibial artery, from which the blood was found to proceed, was tied. Up to this time the outbursts had always been arrested by pressure over this vessel, and the patient was altogether in so feeble a condition as not to admit of the operation being performed earlier.

On the 9th, at 9 P. M., hemorrhage again took place from the original wound in front of the leg; and the house-surgeon, supposing that the ligatures round the vessel had given way, reopened the wound which had been made to secure the vessel, but found everything in its place, and no blood between its lips: the hemorrhage was therefore assumed to come from the anterior tibial or peroneal arteries. A tourniquet having been applied, and local pressure made, the bleeding was stopped; but as a good deal of fetid unhealthy pus escaped from both wounds on pressure, Mr. Holthouse considered that the patient would have a better chance of recovery if his leg were removed, than if another operation were performed in search of the bleeding vessel. Taking advantage, therefore, of the incision which had been made previously to secure the posterior tibial artery, another was made parallel with it on the outer side of the limb, and the two connected by a transverse incision below: a very good and abundant anterior flap was thus formed of skin only, while a short flap posteriorly completed the operation, according to Tenon's method. The patient lost but little blood, and rallied well from the operation. It was observed at the time that a portion of the skin forming one of the lower angles of the anterior flap was thickened, indurated, and unhealthy-looking; and on the

14th, this was found to be in a state of slough; the patient's pulse, also, was very frequent and feeble; he was therefore ordered three grains of quinine every three hours, and the brandy, of which he had previously taken fourteen ounces daily, was increased to twenty-four ounces. Several of the wire sutures were removed, and a yeast poultice applied to the stump.

June 15th.—The sloughing process was arrested; the appearance of the patient had much improved; the pulse had fallen to ninety-two, and was stronger.

17th.—Slough separating; pulse 88; his general appearance much improved. He will have a good stump, the slough not having extended to that portion of the skin which covers the ends of the bones.

19th.—Slough quite separated, and its place occupied by healthy granulations.

24th.—Stump nearly healed; pulse 66; tongue clean; appetite good. He was yesterday placed on full diet, and has twenty ounces of brandy and a pint of porter daily. Convalescent as regards his general condition, but he is not yet *compos mentis*, being still unable to converse in a rational, consecutive manner. He will answer the first question put to him rationally, but will then diverge into some topic altogether irrelevant. He has no memory of anything that has happened; he cannot even remember events occurring only a few hours since, and will lose his temper with the nurses or his wife, whom he charges with neglecting him and not coming near him, notwithstanding their attentions have been most assiduous, and he has never been left alone.

July 18th.—A few days after the last note was made, his intellectual faculties returned, and for the last fortnight he has been going about the ward on crutches, and is gaining strength and flesh. He recollects nothing of the accident, beyond the fact that he was wheeling a harrow on the scaffolding at the moment it gave way; but from that till the 26th of June, when he was removed from a private ward in which he had been placed into the general ward, his existence was a blank. He has no recollection of either of the operations, and was surprised to find he had lost his leg.

ART. 94.—*Remarkable case of recovery after Fracture of Base of Skull.*

By Dr. JOHN A. LOCKWOOD, Surgeon U. S. Navy.

(*American Journal of Medical Sciences*, April, 1869.)

In this case there was copious discharge of blood and watery fluid from the ear, with a portion of unmistakable brain-substance, and yet the patient recovered.

CASE.—John Smith, third ordinary seaman, æt. 30, on the 19th September, 1865, on board the U. S. ship *Constellation*, at sea, fell from the spar to the main deck, down the fore-hatchway, striking plumply upon the crown of the head. When examined, there existed insensibility, a very feeble pulse, foaming at the mouth, stertorous breathing, copious flow of blood from right ear, and from the nose. Three hours subsequently the pulse had rallied; he was capable of being aroused; no epistaxis; bleeding from ear diminished; a small quantity of brain had come away with the blood from right ear. The amount of blood which escaped from the ear during the first four hours was very considerable, estimated at fifty or sixty ounces. Cut cups depressed the pulse; a stimulating injection was retained for several hours, acting freely when consciousness was restored. During the night discharge of blood and serum continued, and comparatively moderate. Reposed quietly.

September 20th.—Inclined to be comatose; aroused with some difficulty. Moderate discharge of serum or watery matter, colored with blood. Small particles of brain taken from the meatus, and carefully examined by assistant-surgeon Wyatt M. Brown and myself.

21st.—Disposed to sleep. When not asleep, restless, and wishes to walk about; wants his grog; no lack of muscular power; mind wandering; complains at times of pain in head; pulse natural; colored discharge as before.

22.—Intellect clearer; more headache; discharge continuous, but no longer discolored.

23d.—Mind quite clear; during night renewed discharge of blood from ear and nose.

24th.—Violent pain across the forehead; watery discharge.

25th.—Severe suffering from headache during the night; this morning succeeded by a sense of fulness; watery discharge as before.

26th.—Less pain; sense of fulness instead: watery discharge as before.

October 23d.—Returned to duty. Still complains of a ringing in the ears, and a sensation described as a "stoppage in the head." He is quite robust, and otherwise in good health. The watery discharge from the ear did not entirely cease for nearly a month. At one time it was sufficiently copious to wet disagreeably, during sleep, his pillow, and necessitated plugging the orifice of the ear before going to bed. For a short period the discharge was yellowish, and of an offensive odor, probably from an internal abscess.

Agreeably to Smith's own statement, he had been epileptic since 1850. He had experienced two attacks since joining the ship, seven weeks before the accident, and it was on the incursion of a third that he fell through the hatchway. After the injury, he escaped with a single fit during the succeeding three months. The following spring he was discharged the navy, and I have not been able to trace his further history.

The diagnosis in this case I regard as unmistakable. The very copious flow of blood from the ear, the discharge by the same outlet of watery matter, and a portion of the substance of the brain itself, proves that a fracture of the skull at its base (produced by a *contre-coup*, when the full force of the fall was sustained by the vertex), had involved the petrous portion of the temporal bone.

ART. 95. Sub-periosteal resection of the inferior maxilla, without any external incision. By Dr. PARAVICINI.

(*Annali Universali di Medicina*, 1858, and *Gaz. Méd. de Paris*, July 16, 1859.)

The following case is accompanied by some general remarks on sub-periosteal operations, the principal object being to show that by means of such operations, amputations of limbs and other serious mutilations may often be avoided. The case itself is of considerable interest.

CASE.—A woman, æt. 24, of a lymphatic temperament, married, and several times pregnant. Soon after her first confinement in October, 1857, she became affected with an indolent, hard, knobby, swelling of the gum on the left side of the inferior maxilla. In the course of the twelve months following, this tumor became of considerable size. The teeth upon it loosened and fell out, and several unhealthy ulcerated places made their appearance. The character of the disease was not very obvious. At this time Dr. Paravicini dissected out the tumor, and applied the actual cautery to the exposed bone, and shortly afterwards the patient left the hospital, apparently well. Under the microscope the tumor presented no signs of a malignant character. A month later the disease had returned, and matters were worse than they were at time of the operation. At this time also, there was no doubt that the bone was implicated. Under these circumstances, Dr. Paravicini decided upon the sub-periosteal resection and disarticulation of the affected half of the inferior maxilla. In order to this, the patient was put under the influence of chloroform, and a cork placed between the molar teeth on the sound side. Opening the lips wide, incisions were then made down to the bone, parallel to the alveoli and below the tumor, and by means of the finger and a director, the periosteum was detached from the bone. This was a difficult matter in many parts, and particularly under the attachments of the temporal and masseter muscles, but eventually it was accomplished. A knife was only necessary to divide the dental nerve and artery. Having dissected in this manner the bone out of its perio-

teum, the bone itself was cut through by strong bone-forceps in the median line and at a little distance below the condyle. After this, the remaining portion of the ramus was seized with a pair of strong forceps, and the head of the bone was brought away by a wrench and sudden turning movement—a proceeding which left the cartilage in the glenoid cavity. The whole operation occupied half an hour, and very little blood was lost. Three weeks later the patient was able to leave her bed, and already now bone might be felt in process of formation within the periosteum. Recovery after this was retarded for a short time by an attack of bronchitis and by some suppurating cervical glands; but in the end she left the hospital quite well, and with very little disfigurement. The tumor was of a fibro-plastic character.

ART. 96.—*On Mechanical Injuries to the Eyeball.*
By Mr. HAYNES WALTON.

(*Medical Times and Gazette*, March 12, 1859.)

Mr. Walton's observations are chiefly against meddling examinations in cases of this kind:—

"Effusion of blood," he remarks, "is the common consequence of a severe injury to the eyeball. It always exists when there is rupture of the external coats, and the danger of its presence is in proportion to the quantity effused in the posterior part of the eye.

"Adaptation as nearly as may be of divided parts—slight sustaining pressure—local and general rest—are the things indicated, and the objects to be accomplished. When I see a patient sufficiently soon after an injury, I make no further examination than is needed to ascertain its nature, to be assured of the line of action required, and to be able to form a tolerable prognosis. Taking care to exclude all extraneous substances, I close the eyelids, and retain them shut by one or two strips of court-plaster, which fulfils the first two indications—adaptation and slight sustaining pressure, with the great addition of excluding the atmosphere. When the accident is severe, I enjoin rest of body and disuse of the other eye. The quicker the union of the wound, the more certainly is the desired object gained, the more perfect the result, and the less the suffering.

"It is positively hurtful to apply stimulating lotions. Swelling of the conjunctiva, chemosis, as it is called, is the inevitable result of an injury, and readily passes away. The frequent use of cold water, or a cold lotion applied with a rag sufficiently thin to allow of evaporation, is most advantageous, and if much pain exist, the addition of some preparations of opium will generally afford relief. Sometimes warm applications are more grateful, so that the use of either must often be discretionary.

"I resort now more frequently to the internal use of opium than in the earlier years of my practice, but I give it in very small quantities, and repeat the dose often; so that although in the end I might prescribe as much, I am sure that I obtain a far better result. I affect the patient's system sufficiently, and keep it so influenced, without that knock-down prostrating result so likely to follow the large dose. I have met with cases in which nothing short of the local abstraction of blood would give ease.

"I learned in the operations for the extraction of cataract and for artificial pupil, how much is to be gained by not opening the eye for at least a week after it had been incised, and that knowledge I apply here. I am wholly unaware of a single object that is to be gained by an earlier inspection, or one from day to day, as have been advocated by some surgeons. If matters are doing well it is not needed, and if any untoward events supervene, their existence is always manifested in appearances of the upper eyelid, and then it is, more than at any other period, that opening the eye is likely to be hurtful. Usually I do not remove the plaster for a week, and then I prefer that the patient should, of his own accord, and after the tarsal margins have been duly

cleansed, open the eye. The act is then devoid of suffering. The application of the surgeon's finger is very apt, where there has been much lesion, to produce pain, and that often of long duration.

"But what is to be done when the iris is more or less prolapsed through the cornea, or perhaps through the sclerotics? The latter state is the more common. The sclerotics is more easily ruptured than the cornea, and the giving way is generally close to the attachment of one of the recti muscles. Most assuredly, as a rule, the less that is done the better. But very seldom, indeed, can it be necessary to interfere. I have a very few times thought it prudent, from the amount of the prolapse, from the very large bit that was hanging out, and to lessen irritation, to reduce the flap with a pair of scissors; but I repeat, that in general nothing of the kind is needed. By a natural and a safe process, whatever is superfluous and not wanted in the progress of plugging and cicatrization is removed. The application of nitrate of silver cannot be beneficial. I know that it destroys primary cicatrization, and besides, increases inflammatory action, so that it is doubly hurtful. I say this after much investigation of the subject and a thorough conviction. In ulceration of the cornea the iris often protrudes in a bladder-like form, being pressed forwards by the aqueous humor. It is often advantageous to puncture the protrusion and produce collapse. I have not, so far as I remember, met with a parallel example from an injury.

"Constitutional treatment must not be neglected, and all measures likely to reduce chronic inflammatory action, I include even mercury carefully and judiciously given, must be adopted if a case calls for it."

Mr. W. properly cautions the surgeon not to let any extent of injury, short of actual collapse, destroy hope of restoring the eye to some degree of usefulness.

ART. 97.—On a Peculiar Form of Scleratitis. By Dr. R. HENBERT TAYLOR,
Surgeon to the Liverpool Eye and Ear Infirmary.

(*British Med. Journ.*, Sept. 10, 1859.)

Dr. Taylor's attention was first drawn to this affection by some remarks of Mr. Dalrymple on the 'Pathology of the Human Eye,' and his first notice was published some years ago in the first volume of the 'Edinburgh Medical Journal.' Several additional examples of the disease have since fallen under the author's notice, and the present paper is to give a resumé of his present knowledge on the subject.

"The disease seems to consist, as I think Mr. Dalrymple correctly observes, in a primary circumscribed inflammation of the sclerotics, which tends to spread *outwardly* to the subconjunctival cellular tissue, and *inwardly* to the structure of the choroid and corpus ciliare. It is attended with the deposition of a whitish matter, probably tubercular, in the tissues above named; and at a more advanced stage of the disease, the cornea is apt to become the seat of opacities varying in size and density. The attendant vascularity occurs in detached patches, assuming somewhat of the fascicular form observed in pustular conjunctivitis, and is generally seated on the upper and outer side of the cornea towards the external canthus.

"The larger trunks subdivide into numerous smaller twigs at a short distance from the margin of the cornea, inclosing an area of a circular or ovoid figure; within this space several conical-shaped bodies are seated, separate from each other, of reddish color at the base, and white or yellowish-white at the apex. They are of firm consistence, and evidently connected with the subjacent tissues, as they cannot be moved with the finger. The textures surrounding them are generally somewhat thickened and elevated; and the appearance is not unlike what we might suppose to arise from the deposition of some solid matter in the substance of the sclerotics and subconjunctival cellular tissue. The cornea is usually, though not always, the seat of some opacity. These opaque patches vary in form, extent, and density. They generally occupy the

side of the cornea nearest to the thickened sclerotic, and are either separated from it by a clear strip of cornea, or, as more frequently happens, are united to it; presenting the appearance as if the opaque texture of the sclerotic had advanced upon the cornea. In some instances, where this union was only partially developed, minute red vessels could be distinguished, running apparently upon the internal surface of the cornea, and extending from the thickened portions of the sclerotic and corpus ciliare towards the corneal opacity.

"In one instance, and only one, I have observed the cone-shaped bodies ulcerate upon the apex and discharge their contents through the aperture there formed. This process was followed by rapid sinking of the elevations, and a marked decrease in the surrounding vascularity.

"The movements of the pupil are usually sluggish, or almost wholly suspended, in the early stage of the disease; and at a more advanced period, it is apt to become irregular, and displaced from its central position toward the seat of the disease in the sclerotic.

"Pain is of a variable character, being usually slight in degree, sometimes amounting only to a sensation of tenderness on pressing the eyeball, or a feeling of stiffness on rolling it from side to side, or in exercising the eye much by artificial light. In other instances, again, the pain is more marked, consisting of a darting sensation in the eyeball itself, with sharp lancinating flashes extending upwards to the eyebrow and the side of the head, and down along the side of the nose to the chin.

"Vision, in general, is impaired to a greater or less degree. Where opacities to any extent exist upon the cornea, it must, of course, be imperfect; but independently of this, it is usually defective, and liable to become more so when the eye is used for any length of time. In one case recently seen, the patient stated that all objects appeared for a time of a bluish cast, which was followed by the sudden appearance of flashes of light of reddish color.

"Watering of the eye generally accompanies this defective state of vision, and is increased by anything which tends to promote vascular congestion, as walking against a wind, or exerting the eye in looking at minute objects.

"With regard to the persons most liable to attacks of this disease, it seems to affect females more frequently than males, usually young adults, and those especially of a strumous habit. One eye is usually attacked rather than both, although it may appear alternately in each; and when one is the seat of the disease, it may affect both sides of the eyeball simultaneously, or commencing on one side of the cornea, may gradually travel round its entire circumference, disappearing in one spot as it is developed in another.

"One of the most characteristic features of the disease is its chronic obstinacy. Its first development is generally slow and insidious. Commencing with slight redness in one portion of the eyeball, which is at first intermittent, moderate lachrymation, and some uneasiness occasionally amounting to pain, and varying dimness of sight; it gradually steals on, till at length the patient becomes conscious that there is something materially wrong with his eye, from observing an opaque spot upon the cornea, or finding that he can no longer use the organ as before.

"So much is this the usual subtle course of the disease, that we not unfrequently find, on close examination, that its commencement dates several months previous to the time when the patient first applied for medical advice. Of eleven cases, minute details of which I have preserved, three occurred in males, and eight in females. Their ages ranged from fifteen to sixty years, seven out of the eleven being under thirty-one. In all of these instances, with a single exception, the disease was confined to one eye only; affecting the right eye in six cases, and the left in four. In eight instances, it was confined to one side only of the eye attacked, and that generally the inner; and in three, it affected both sides of the cornea. The disease attacked the eye for the first time in eight cases, for the second time in one, for the third in one, and for the fourth in one; while the duration of the attacks in these different instances varied from three weeks to four years.

"With regard to the intervals of the time which elapsed between the differ-

ent accessions of the disease in those who suffered more than one attack, and the season of the year when they occurred, it may be observed that, in the person who suffered two attacks, the first occurred in April, and the second in November of the same year. In the case of the three attacks, the first occurred in the winter of 1854, the second in the winter of 1855, and the third in the autumn of 1856; while the patient who suffered four attacks was affected first in March, and second in October, 1853; for the third time, in July, 1856, and finally in May, 1859.

"As regards the immediate cause of this disease, I have nothing very definite to state. Seven out of the eleven cases occurred in persons whose general health was more or less disordered at the period of the attack, and one of these suffered likewise from otorrhoea. In one instance, it was attributed to exposure to cold; and, in another, the symptoms were said to have been aggravated from a similar cause; while in two examples no cause was apparent, or could be assigned. Upon the whole, I think we may regard this disease as furnishing another example of those many and various local affections which date their origin from constitutional causes, and which must be looked upon as indicating an unhealthy condition of the system at large.

"The only other ophthalmia with which this form of disease may be confounded—and it is a mistake not likely to be made by any one familiar with the pathology of the eye—is pustular inflammation of the conjunctiva. Both occur in young adults, and both are characterized by a fascicular arrangement of bloodvessels occurring in detached bundles, and running towards and subdividing around a common centre. In pustular ophthalmia, however, the point of attraction is a pustule or vesicle, seated in the conjunctiva, and in some degree movable with this membrane; generally of a rounded figure, with a flattened apex, and either filled with a semi-opaque fluid, or, at a more advanced stage, forming a shallow ulcer. These appearances are very unlike the firm, immovable, cone-shaped body, seated upon a dense thickened base, and described as characteristic of the disease under consideration. Pustular ophthalmia, in addition, is rarely accompanied with dense opacities upon the cornea, or with any indication of inflammatory action in the tissues of the sclerotic, iris, and choroid, such as we see in the other form of disease.

From what has been already said with regard to the development and progress of this affection, it will readily be understood that the prognosis is not likely to be of a very cheerful or encouraging character. In any case, the improvement is likely to be slow, and the more so in proportion as the disease has existed for a longer period. When the disease is limited mainly to the sclerotic, and to the tissues immediately above and beneath, we may anticipate a return to health under appropriate treatment; but, should the cornea have become the seat of large and dense opacities, and if, as may be anticipated in such circumstances, the textures of the choroid and corpus ciliare are also implicated, the result, under any treatment, is not likely to be so favorable; and, should we succeed in arresting the progress of the disease, the eye will probably remain permanently altered* in structure, and vision more or less impaired."

ART. 98.—On the removal of the acute pain of Glaucoma by operation.

By Mr. HAYNES WALTON, Surgeon to St. Mary's Hospital, &c.

(*Medical Times and Gazette*, July 10, 1859.)

"A female, in middle age," writes Mr. Walton, "was sent to me in private by Mr. Wall, of Paddington, with acute glaucoma of the left eye, which was very tense, much injected, the pupil dilated, and the iris pressed forwards by

* In seven out of eight cases, vision was not ultimately impaired beyond slight dimness, accompanied with irritability of the eye, and inability to use it in reading or writing, except for very short periods. In the other case, the sight was never very defective, and ultimately became good.

the semi-opaque lens. Vision was quite lost; and I was consulted solely on account of the severe suffering, sometimes lasting for several consecutive hours, but more generally in paroxysms, which nothing has been able to subdue. The extreme vascularity of the eyeball, and the general plethora, induced me to order cupping to the temple, and purgatives. Not the slightest benefit ensued. Opiates, both locally and generally, were then tried, with no more effect than securing better nights' rest than hitherto; but the general health was deranged by the narcotics, which were discontinued. Other drugs were administered in vain. Thus, after a period of five months, the patient got no material benefit either from myself or from any other surgeon by whom she had been treated, and she had applied to several. She expressed her desire to submit to any operation likely to afford relief; and she was the more anxious as the right eye was certainly sympathetically affected, as manifested by intolerance to light and lachrymation. Rather than extirpate the eyeball, a practice that my patient had heard of, and which is certainly very objectionable if it can be avoided, or rather than reduce it by the removal of the anterior portion, an operation that is very serviceable in checking certain morbid notions, and which should, when applicable, be preferred to the above, I determined to try the experiment of extracting the opaque lens, and evacuating some of the vitreous humor. I effected this without wounding the iris. The vitreous humor was apparently quite normal.

"The acute pain ceased, and there was less uneasiness during the healing process, which was quickly effected, than is often experienced in successful operations for the extraction of the cataract. It is just five weeks since I operated. There has been no recurrence of pain; there is yet conjunctival vascularity; there is no other abnormal appearance about the eye, except that the pupil is irregular, a part of it being adherent to the corneal wound; but there is no prolapse. The right eye has lost the sympathetic irritation.

"I desire not to set more value on a single example like the present than it is worth; nor do I attempt to generalize from a single instance; but even as a unit, as an isolated fact, it has its value. It will encourage me to investigate the matter further; and I doubt not that, with this publicity, the subject will receive attention from others. I shall not attempt to explain the rationale of the operation; nor do I venture to speculate on any advantages that may be gained by this means when adopted in the earlier stage of the disease. My object is to record an experimental success in the removal, by a simple plan, of a distressing symptom that will not at all times succumb to any ordinary treatment, except that which mutilates or disfigures. I can affirm, from personal experience, that Græfe's iridectomy does fail in these instances.

"The tendency to internal hemorrhage, when a diseased eyeball is incised, is well known; and I adopted the generally successive preventive of applying a pledget of cotton wool and a bandage over the eye, and retaining it two or three days. No bleeding occurred.

ART. 99.—*New Operation for the Relief of Pain in Acute Glaucoma.* By Mr. HANCOCK, Surgeon to the Royal Westminster Ophthalmic Hospital, &c.

(*Lancet*, Oct. 29, 1859.)

CASE.—Arthur H.—, æt. 15, a tall, tolerably healthy-looking youth, was admitted on the 8th ultimo. When he was five years old, he was hacking a mutton bone with a knife, when the latter slipped and wounded his left eye. From the effects of this accident he was confined to the house for some time. The pain soon subsided; but the sight of the eye was destroyed. There was no apparent breach of continuity. No pain recurred until May last, and then he noticed that the eyeball began to enlarge. He applied as an out-patient on the 7th of July. At first, by the treatment adopted, the pain was relieved; subsequently it remained stationary at one point of intensity. It has become worse since, swelling of the eyeball has been increasing. The pain is slight if the globe be still; but by the slightest movement or pressure, violent aching

is occasioned. It was feared that the other eye was becoming sympathetically affected; and he has been overtaxing it lately by writing.

Condition of the eyes.—The right healthy; sight good. The left swollen to about twice the size of the normal eye; sclerotic vessels dilated; choroid not showing through the sclerotic; pupil dilated extremely, slightly irregular. Masses of the capsule of a disorganized lens are visible. The enlargement of the whole globe is uniform. He complains of great pain when the eyeball is touched, which feels very tense and hard to the finger.

Operation.—On the 9th of September, Mr. Hancock introduced a Beer's cataract knife at the junction between the cornea and the sclerotic, the blade being inclined downwards, the point proceeding inwards and backwards. The place of puncture was the commencement, on the outer side, of the lower semi-circumference of the cornea. The point of the knife, now having traversed obliquely the layers of the cornea, was pushed backwards towards the interior of the globe, thus dividing the ciliary ligament in a portion of its extent. On the removal of the knife, a quantity of discolored fluid escaped.

Mr. Hancock, considering that the great pain was due to tension of the iris and ciliary ligament by accumulated fluid, the product of the disorganized parts behind, believes that all the indications for the relief of the suffering will be fulfilled by this operation. And its advantages are:—

1. By the situation and oblique direction of the incision, a free drainage of the fluid is provided for.
2. The iris is very slightly wounded.
3. The pupil is preserved, of its original size, and in its normal situation.
4. The operation is very simple, and is performed very quickly.

Sept. 10th.—Except for an hour or so after the operation, the patient has suffered no pain. The operation gave relief. He has slept perfectly well; before this, he has been frequently awakened by the pain induced by pressure on the eyeball from turning in bed.

11th.—Eye perfectly easy during the whole day.

12th.—Not the slightest pain, even on considerable pressure; the eyeball feels much less tense; the pupil is less dilated; no prolapse of iris through the wound.

21st.—Has gone on uninterruptedly well since last report; there has not been the slightest pain; the size of the globe has sensibly diminished; the pupil is far less dilated than it was before the operation; and the globe, instead of being hard and resisting, now easily yields to the touch; pressure upon it occasions no pain.

ART. 100.—*Three Cases of Orbital Aneurism treated by Tying the Common Carotid.* By Mr. NUNNELL, Senior Surgeon to the Leeds Eye and Ear Infirmary.

(*Proceedings of Royal Med. and Chir. Soc.*, vol. iii., No. 2, 1859.)

After mentioning the rarity of the affection, the author alludes to those few cases which have been recorded, of which four have been brought before this Society, and are published in its 'Transactions.' Two of these cases were not only the earliest but amongst the most interesting that have been related, and for a great number of years they stood alone. They are those of Mr. Travers in the second volume, and of Mr. Dalrymple in the sixth volume. Many years afterwards Mr. Busk reported a case of his own, and also mentioned another, treated by Mr. Scott, in the twenty-second volume. Two cases occurred in Paris in 1839; one to Velpeau, and another to Jobert. Mr. H. Walton has published a case of an infant, in which he operated; and three other cases have occurred in America, where Dr. Van Buren operated in a case of traumatic aneurism of the orbit in a young man, who had also symptoms of a fracture of the base of the skull, and Drs. V. Mott and J. R. Wood, have

each tied the carotid for a case of integumental *nævus* extending into the orbit. There are also three other cases of doubtful nature, mentioned by Dupuytren, Schmidt, and Frere, of which one, however, if not more, are quite as likely to have been malignant disease as aneurism. As three cases have lately come under the author's observation, in all of which the common carotid artery has been tied, he has thought them not unworthy of being brought under the notice of the Society. Since Mr. Travers first declared the disease to be an aneurism by anastomosis it has commonly been so regarded, but from which opinion the author dissents. The reason for which he gives, after narrating the cases themselves.

The first case occurred in a healthy man, *æt.* 31 years. The early history and origin of the complaint were at first very obscure : made purposely so by the patient to conceal the true cause of it—a hard blow upon the left eye in a drunken midnight fight. At first there was some protrusion of the ball, congestion of the conjunctiva, and dulness of vision, but no pulsation. It was suspected a chronic abscess or serous cyst might be forming deep in the orbit. The eyelids gradually became much congested, swollen, and lobulated, as though about to burst. A minute puncture, followed by considerable effusion, clearly showed the distension to be caused by blood. Subsequently aneurismal thrill and pulsation were detected. As pressure on the carotid at once arrested these, and allowed the protrusion and vascularity of the eyeball to subside, the artery was tied, with the effect of immediately removing some, and materially diminishing all the symptoms. The brain was unaffected on the tightening the ligature. The patient progressed most favorably until the twenty-fourth day after the operation, when, without any assignable cause, the symptoms somewhat returned, but were soon checked by venesection and purgatives. In a month he had returned to his work, the ligature being still fast on the artery. After continuing at it for the space of three weeks, suddenly, without, as he then said, any known cause, during the night the injection, protrusion, and pulsation in the eye returned to such a degree as to render consideration what further should be done necessary. The propriety of extirpation of the contents of the orbit, the ignition by a battery of wires passed into the orbit, the introduction of threads or wires coated with nitrate of silver or sulphate of copper, the injection of perchloride of iron or tannin, and the ligature of the other carotid were discussed, and the latter plan determined upon, if depletion did not succeed. Repeated venesection, purgatives, low diet, cold to the orbit, and upright position, were rigorously adopted with the best effect. The symptoms all subsided, when, before the cure could be said to be complete, the man was put into gaol, and subsequently lost sight of for some weeks. He then worked hard as an excavator and housebreaker, for which he was sentenced to penal servitude. When seen during the last month in Wakefield prison, it was found the sight of the eye was lost; but in every other respect he was perfectly well. He then voluntarily stated he had only himself to blame for the recurrence of the symptoms, as on the first occasion he clandestinely left the house on a very cold day, walked some distance, and eat and drank freely; and on the second, he had been out all night poaching. The ligature did not come away until ninety-six days after the operation.

In the second case a man, *æt.* 38 years, the affection came on without any assignable cause. It had existed many months. The operation was perfectly successful, and he returned to his work, as a weaver, in a month after it. In him, also, while wheeling a barrow, there was a sudden renewal of some of the symptoms, which however a few days' rest removed, and when even, twelve months after the operation, the eye was perfect; a little boggingness of the lids being the only vestige of the affection.

In the third case a woman, *æt.* 55 years, the disease, "suddenly as the crack of a gun," came on while she was stooping to take off her shoes. It was attended with more pain and more active symptoms than the other two; the pain in the head and eye was most distressing. The operation was a difficult one. The neck was short and thick, there was a large bronchocele, with many congested veins; and the carotid divided unusually low in the neck. There was

some hæmorrhage from an unseen vessel. The brain was seriously affected on the tightening of the ligature. There was convulsion of the same side of the body, and partial paralysis of the opposite. The local symptoms, however, disappeared instantly. She sank on the sixteenth day after the operation, having had repeated losses of blood from the wound. There had been paralysis, more or less complete, of the right side of the body, with constant partially controllable movements of the left side, difficulty of speech, and some impairment of intellect.

On examination of the body, forty-eight hours after death, the external appearance of both eyes was the same. The brain was very pale, containing very little blood; but, so far as can be judged, the same on both sides. There were no signs of recent inflammation or effusion, but there was old general thickening of the arachnoid membrane. The right hemisphere of the brain was of a natural firmness, the left was soft, and in the lower part of the middle lobe, just over the entrance of the carotid artery into the cranium, was a patch as large as a hazel-nut, quite broken down. The carotid artery, on its emergence from the bony canal, was enlarged and surrounded with a small conglutulum, which involved the origin of the ophthalmic branch. This latter vessel was enlarged, and its coats diseased, as were its continuation to the inner side of the orbit, and the lachrymal branch: these were filled with conglutulum; all its other branches were so small as hardly to be seen. There was nothing like aneurism by anastomosis in the orbit. All the cranial arteries were very patulous, and studded with atheromatous and earthy deposits.

The ligature had been securely placed upon the carotid, but somewhat near its bifurcation; below the vessel was well filled with conglutulum, and the sheath, as low as the sternum, consolidated with fibrin; but above the ligature the vessel and all its branches were quite open, there being neither conglutulum nor fibrin. The bronchogele extended nearly to the sternum. The parts were placed upon the table, and also drawings of the appearance of the eyes just previous to the operation in all the three cases.

The author then comments upon the nature of the affection, stating the points in which, in its origin, progress, symptoms, and treatment, it differs from aneurism by anastomosis, and expresses his conviction that it is an error so to call it; that, in reality, it may be true aneurism, or false circumscribed, or diffused aneurism, either within the orbit, or of the carotid within the cranium, near to the origin of the ophthalmic branch.

It is remarked that all these cases occurred on the left side, and that amongst those reported, which had arisen spontaneously, the majority were on the left side and in women, while those which supervened upon local injury were, as might be expected, most common in men, and on either side. The cases were, however, too few to justify more than calling attention to the fact, which may be only accidental, and be reversed on examination of a greater number.

ART. 101.—*All the capital signs of Orbital Aneurism without Aneurism or Erectile Tumor.* By Mr. HULKE, Assistant-Surgeon to the Royal London Ophthalmic Hospital.

(*Ophthalmic Hospital Reports*, No. 7, April, 1858.)

The great importance of this case in the history of this rare and obscure disease is the author's apology for presenting it at length. Bruit, pulsation, protrusion of the eyeball—in short, all the physical signs of orbital aneurism were present in a marked degree, yet no aneurism or erectile tumor existed. How much doubt this case throws on many of the recorded examples of aneurisms of the orbit! It has been a common custom to speak of such cases as aneurisms by anastomosis; but this, in the majority of instances, is not their true nature. An analysis of twenty-one cases shows that they range themselves in two distinct series; the first comprising aneurism properly so called, true and diffuse; the second aneurisms by anastomosis, or erectile tumors. The former series is much the larger; and indeed the age at which the disease is most frequently

met with, the suddenness with which the symptoms appear, often immediately following a blow or other direct violence, all point to aneurism proper in contradistinction to erectile tumor. This has been strongly insisted upon by Mr. Nunneley, of Leeds, in the article immediately preceding the present one. But the present case does not come under either category; for neither aneurism nor erectile tumor was present; yet, had the woman recovered, no doubt would have been thrown on its nature, and the case would have been adduced as another instance of orbital aneurism, cured by ligature of the carotid artery. It is difficult to explain the aneurismal symptoms by the pathological appearances, which were those of phlebitis of the cavernous, transverse, circular, and petrosal sinuses. The internal carotid artery may have been partially compressed by the swollen walls of the cavernous sinus against the side of the body of the sphenoid bone giving rise to the bruit, which would have a good conducting medium in the cranial bones. The plugging of the trunk of the ophthalmic vein, where it joins the cavernous sinus, by obstructing the return of blood from the orbit, accounts for the protrusion of the eyeball, and, perhaps, also for the pulsation which was felt when the fingers were laid on it; because each diastole of the ophthalmic artery must have been attended by a general momentary increase of the whole quantity of blood in the orbit, because its exit through the ophthalmic vein was cut off, and the resisting bony walls of the orbit could permit a distension in front only. The healthy state of the internal carotid artery and its branches, and of the internal jugular vein, preclude the idea that the pathological changes in the cranial sinuses commenced subsequently to the deligation of the common carotid. This operation was performed in fifteen of the twenty-one cases alluded to, and the result in eleven instances was satisfactory. Two cases were recently cured by digital pressure on the common carotid artery, by Gioppi, and Vanzetti, of Padua.

CASE—A woman, *æt.* 40, of irregular, dissipated habits, was admitted, February 19th, 1858, into King's College Hospital, under the care of Mr. Bowman, with symptoms supposed to depend on orbital aneurism. Five months previously, in a scuffle, she was struck with a fist on the left side of the head and temple. The blow knocked her down. The next day she felt severe pain in the left temple, about one inch in front of the ear. The pain was aggravated when she moved about and when she stooped; it disturbed her sleep. After a fortnight it subsided, but was replaced by a rushing noise, like the beating of a steam-engine, on the same side of the head, at first towards the occiput, but latterly in front of the ear and temple. The noise was constant, and increased when the heart's action was quickened. She said that, since first heard, it had gradually increased in loudness. The noise had been heard by her husband ever since three weeks after the accident. A month before her admission into the hospital she found her sight "bothered" when she looked at an object with both eyes. A fortnight after this the left eye became red and sensibly projected. The subjoined memorandum was made on her admission.

"General fulness of the left orbital region, with prominence of the eye, which is congested. The pupil dilated, but active. Sees distant objects perfectly, but is unable to read. The angular vein and one over the outer edge of the orbit are dilated. There is an abrupt depression in the lower border of the orbit at the articulation between the malar and upper maxillary bones. A loud sibilant bruit can be heard extensively over the left side of the head, but it is most intense above and in front of the ear. This sound is synchronous with the beating of the heart. A similar bruit is heard along the course of the great cervical vessels as far down as the common carotid artery. The fingers being placed upon the left eye, when the lids are closed, pulsation is plainly felt, and the fingers are seen to rise and fall with it. A loud bruit is also heard when the stethoscope is placed on the front of the globe. Head symptoms, as giddiness and loss of memory, have never been present. The irregularity of the lower border of the orbit seems to have resulted from a blow received three months after the first injury."

All these symptoms plainly pointed to the existence of orbital aneurism, and

as they were manifestly increasing, Mr. Bowman decided to tie the carotid artery. This was done on February 27th, the patient being under the influence of chloroform. The operation was accomplished without difficulty and with the least possible interference with the adjacent structures. The sheath was opened only just sufficiently to allow the passage of the aneurism needle. The internal jugular vein and pneumogastric nerve were not seen. The vessel was tied a little higher than was originally intended, in consequence of a large vein running across the line of the wound. Immediately on tightening the thread all pulsation was arrested in the vessel and its branches above. The pulsation and bruit hitherto felt and heard over the front of the eye at once ceased. On recovering from the effects of the chloroform she was sick, and stated that she still heard the noise in her head, but faintly; it could not, however, be heard by other persons. Next day she complained of great throbbing in the right side of the head, and in the left side of a sound like the noise of a drum a long way off. The eye was less prominent and less congested, and she spontaneously said that her sight was no longer "battered." During the next week she was much distressed by cough, with a free bronchial expectoration, to which she had been liable for two years past. On the 7th, the wound, which had nearly healed, assumed a phagedenic appearance. A distinct bruit could be heard over the front of the eye, and also over the left forehead, but more faintly. Just in front and a little above the ear, on the same side, a continuous musical note of rather a high pitch, swelling out at each pulsation, could be heard. There was little change in the nature of the sound as heard by herself, though at times it was rather more intense. Above the point of ligature no pulsation could be felt in the carotid. The phagedenic ulceration spread, and the discharge from the wound was unhealthy. The tongue became furred, dry, and brown. On the morning of the 10th, at two o'clock, there was slight oozing of blood from the wound; two hours afterwards it recurred to the extent of a couple of ounces, and seemed to come from the upper angle. It was readily checked by slight pressure.

The hemorrhage recurred twice during the next twenty-four hours, and she had a severe rigor. The ligature separated without bleeding on the evening of the 11th, thirteen days after the vessel was tied; but on the following morning at four o'clock, free hemorrhage took place. It was repeated several times during the next four days. The blood welled up in a full stream from the bottom of the deep sloughy wound; slight pressure always arrested it at the time. Graduated compresses, moistened with perchloride of iron, were employed. It seemed probable that the bleeding came from the upper end of the vessel. The left eyeball again became prominent; the pupil was dilated and motionless; the eye was everted; and there was ptosis of the upper lid. No pulsation could be felt over the eye. A free gush of blood took place during the visit on the 15th. With some difficulty Mr. Bowman struck a tenaculum through the spot from which the blood seemed to pour; the tissues were tied with complete arrest of the bleeding. She became weaker; was at times greatly excited, and at length died on the 17th.

Post mortem appearances.—Permission was obtained to examine the head and neck only. The skull cap and dura-mater having been removed, the visceral layer of the arachnoid was found to be slightly opaque, owing to a little serum in the meshes of the pia-mater. The brain and all its vessels were quite healthy; the descending horn of the right lateral ventricle contained two drachms of serum; the other cavities were empty. The pituitary body was swollen, congested, and coated with lymph. The dura-mater being the floor of the sella turcica and the posterior clinoid processes, together with that corresponding to the cavernous, transverse, superior, and inferior petrosal sinuses, was congested and coated with a layer of lymph, which was sprinkled with small dots of blood, but no vessels could be detected in it with the microscope.

The dura-mater forming the outer wall of the cavernous sinus was swollen and softened, and the third nerve imbedded in it was greatly swollen and bathed in serum; the Olfactory ganglion, and the nerves proceeding from it, were in a similar condition. The cavity of the sinus contained a puriform

fluid, which, on close examination, proved to be softened and disintegrated coagulum. The transverse sinus was filled with an old clot, the outer part of which was firm and adherent to the wall of the sinus, but the centre had a tawny brown color, and a pulpy consistence. This grumous pulp was mainly composed of cells, having the appearance of pus corpuscles, but wanting the characteristic nuclei on the addition of acetic acid. Small masses of orange-brown pigment were mingled with these cells. The circular sinus was filled with similar matter. A slender decolorized clot extended from the cavernous sinus for a short distance into the superior petrosal. The superior petrosal sinus, in its whole extent, was filled with softened clot. The vascular foramina on the surface of the body of the sphenoid and tip of the petrous portion of the temporal bone were dilated; a section of these bones had a rather brownish color, but they were not soft or carious. The double bend of the internal carotid artery resting against the side of the body of the sphenoid bone, together with the carotid and cavernous plexuses of the sympathetic nerve were bathed in ichorous serum, but the artery itself was not dilated, and its inner surface had a perfectly healthy appearance. The ophthalmic artery and its branches were traced with great care, they were not at all dilated, nor more numerous than usual. The infra orbital branch of the internal maxillary artery was not enlarged; the antrum was healthy. The malar was detached from the upper maxillary bone and displaced slightly upwards. This was the only change in the wall of the orbit. The ophthalmic vein seemed much enlarged and had the appearance of a varix. By comparing it with the vein of the other orbit, the enlargement was seen to be due to thickening of its coats, and not to any dilatation of its calibre. Where the vein opened into the cavernous sinus it was obstructed by a softened, degenerated clot, similar to that in the sinus; this clot stretched along the trunk of the vein into the orbit, but here, and in the tributary branches of the vein, it was evidently of more recent date than that which blocked the mouth of the vein at the cavernous sinus.

The ligature had been placed upon the common carotid artery, a little below its bifurcation; the divided ends of the vessel were three-quarters of an inch apart. The external and internal carotids were patulous and empty; the lower portion of the common carotid trunk from the point of deligation downwards to the root of the neck was filled with pulpy, grumous clot, which oozed out from the patulous open end during the removal of the parts. At the root of the neck the vessel was completely closed by a thin, membranous, decolorized coagulum, which formed a perfect septum; below this the carotid had a perfectly healthy aspect. That portion of the vessel containing the decomposed grumous clot, had a dirty-brown stain, and its inner surface was stenciled from adhering shreds of fibrine, but was not otherwise altered. The external carotid and its branches were healthy and empty. The internal carotid artery upwards to the base of the skull and in the carotid canal was healthy; not dilated, and its inner surface smooth and of a natural color. In the upper part of its course it contained a slender, fibrinous clot, a mere thread, which occupied only a slight portion of the calibre of the vessel. The internal jugular vein was healthy, it contained a slender, discolored clot, reaching from the root of the neck to the base of the skull, and a similar clot was found in the left lateral sinus.

ART. 102.—*Strabismus of one Eye cured by an injury which caused the loss of the other Eye.* By Dr. COLSON, Senior Physician to the Hospital of Nuyon.

(*Gaz. Hebdom. de Méd. et Chir.*, July 23d, 1859.)

The practical conclusion to be drawn from this interesting case is this—to keep the stronger eye closed for two or three months, and in this way to necessitate the exercise of the weaker and squinting eye. Thus exercised, in Dr. Colson's opinion, the probability is that, without any other kind of treatment,

the weak eye will have acquired power and lost its squint, when the bandage is removed from the other eye.

CASE.—Lefebvre (Arcade), æt. 7, living at Varesne, near Noyon, and suffering from convergent strabismus of the right eye. The pupil is almost hid within the inner angle of the eye when the left eye is open, but when the left eye is shut the right eye loses its convergent squint. The sight of the right eye is very defective—a fact which appears to arise from the other eye being always used for purposes of vision. Dr. Colson recommended exercise of the weak eye by closing the stronger member, but the parents soon got tired of this mode of treatment, and nothing further was done until an accident did for them what they were unwilling to do for themselves. This accident occurred on the 17th of April, 1859, the child then being nearly twelve years of age. At play with other children, an arrow struck him in the left eye, and caused the complete destruction of this organ. This necessitated the use of the right eye, and nothing could be more rapid and satisfactory than the results. From the time of the wound the squint disappeared, and before the end of two months, the eye, which at first was scarcely able to do more than distinguish between light and darkness, was able to read ordinary print.

ART. 103.—Recent Strabismus Cured by Removing a Piece of Necrosed Bone from a Whitlow. By Mr. HULKE.

(*Medical Times and Gazette*, Jan. 29, 1859.)

The influence of peripheral sources of irritation upon the nervous system is well known. Teething and convulsions, lumbrici and epilepsy, are familiar examples as regards the great centres themselves. Instances of the sympathetic affection of single nerves, or of isolated groups of muscles, although less frequent, are by no means uncommon. Strabismus in young children sometimes supervenes, apparently in connection with worms. The subjects of the curious manifestations of nervous sympathy are, however, almost always either children or delicate women, in whom the cerebro-spinal system is peculiarly susceptible. The following case exemplifies the occurrence of a squint, in an adult man, seemingly in consequence of the irritation caused by a whitlow. At any rate, the squint came on coincidently with the necrosis of the terminal phalanx of one finger, and was wholly cured by the removal of the dead bone.

CASE.—Owen J., æt. 37, applied at the Royal London Ophthalmic Hospital, September 24th, 1858, for advice about his left eye. He gave the following account of his case:—

Seven weeks previously, a whitlow came on the last phalanx of the thumb of his left hand; this was followed by inflammation of the lymphatics, and the gland above the elbow and those in the armpit became enlarged and very tender. The whole arm was very painful. While the limb was in this condition, one morning, on getting up, he found that he saw double, and had a squint in his left eye: this induced him to come to the Ophthalmic Hospital. It was found that he had complete paralysis of the outer rectus muscle, and could not turn the eye out beyond the middle line. He also complained of severe circumorbital pain. He was directed to poultice the whitlow, which had burst; to foment his arm, and keep it up in a sling, on the supposition that the pain about the orbit and the paralysis of the outer rectus might depend on periosteal inflammation. Iodide of potassium was prescribed, which he took till November 23d, without any improvement of the eye. The enlargement of the glands in the armpits and above the elbow, and the swelling of the arm, had quite subsided. A loose bit of dead bone could be felt through a sinus on the under surface at the end of the thumb. It was extracted with a pair of dressing forceps.

30th.—He states that all pain in the arm, and about the orbit, left him soon

after the removal of the dead bone. The squint also disappeared. He can turn the eye out till the margin of the cornea nearly touches the canthus. It is only when he looks to his extreme left that he sees double.

ART. 104.—*On two Modifications of the Operation for Cataract.*
By Dr. VON GRAEFE.

(*Allgem. Med. Cent. Zeit.*, XL, 1859; and *North Amer. Med.-Chir. Rev.*, Sept. 1859.)

One of the most common operations for cataract, that of extraction and the formation of a large flap, affords about ten favorable results in twelve cases; in one case only a partial restoration of sight is procured, and in the other suppurative of the eye is caused by loss of the flap. Division of the lens, which has been proposed as a substitute to the above method, is only applicable in cases where the lens is capable of being absorbed; when the nucleus of the lens is hard and yellow, it is apt to be followed by iritis, and must, under such circumstances, give way to extraction. In the operation of reclinacion the lens acts as an irritant, and produces internal ophthalmia, increase of intra-ocular pressure, excavation of the optic nerve, and amaurosis. The statistics of the operation show that vision is preserved in only one-half of the cases. In old persons, therefore, extraction with the formation of a flap should be preferred to all other operations, which may, however, be used in exceptional cases.

The dangers of extraction are owing to the extensive flap of the cornea, on account of which comparatively little tissue is left for the supply of nourishment, which evil is further increased, and the mortification of the flap is favored by the contusion produced by the lens on its escape. The latter difficulty is obviated by the linear section; but this is only applicable in cases of soft cataract, as in hard ones the frequent introduction of Daniels's scoop causes dangerous irritation of the iris.

In order to render the linear section applicable to a greater number of cases, Dr. Von Graefe has made the following modification: The linear incision is made in the sclerotic in such a manner as that the inner occupies the border between the sclerotic and cornea; the iris is then drawn out and a portion of it snipped off, so as to form a broad coloboma. A broad Daniels's scoop is pushed behind the lens, which, being broken up into small pieces, is removed, without fear of subsequent irritation of the iris. This operation is suitable to soft cataracts with a moderately large and hard nucleus, and is to be preferred in old persons, in whom the state of the constitution would give reason to apprehend mortification of the cornea in the flap operation of extraction. The coloboma, which has but little influence on the sight, should be made on the temporal side instead of above, where it would be less visible, but would, in this situation, render the different steps of the operation more difficult.

The second modification proposed by Von Graefe has reference to the operation of division of the lens. The operation consists in making an upward coloboma, eight days before the division of the lens. This preparatory measure has, as Von Graefe alleges, the advantages of being followed by less swelling of the lens, one of the dangers of the other operation; larger wounds can be made in the capsule, and absorption takes place more readily, being effected in from four to six weeks, while in the simple operation of division it takes as many months.

ART. 105.—*Complete Recovery after Extraction of Foreign Body from Vitreous Humor of Eye.* By Mr. Dixon, Surgeon to the Ophthalmic Hospital, Moorfields.

(*Medical Times and Gazette*, March 26, 1859.)

CASE.—A healthy-looking man, *æt.* 24, by trade a cooper, applied at the hospital on the morning of December 2d, having just before received an injury to his left eye from a chip of steel, which broke off the edge of a chisel which he was using. A small wound, which had perforated the upper lid just above the margin of the tarsus, marked the spot where the metal had entered, and corresponding with this was one in the tarsal conjunctiva. There was a small gaping wound in the sclerotic, about a line distant from the upper edge of the cornea. It thus seemed probable that the fragment had lodged itself within the globe. The pupil was active, and the vision nearly perfect. On examining with the ophthalmoscope, a clot of blood was distinctly seen hanging down from the wound, and waving to and fro behind the lens. Just below the optic entrance was a small, round body, resembling a globule of clear lymph. As the foreign body had not been detected, no operation for its removal could of course be thought of. The eye was treated in the usual plan, being covered with cotton-wool, and lightly bandaged.

A week after the accident, on making a second examination with the ophthalmoscope, Mr. Dixon discovered the foreign body. It had evidently been concealed behind the iris, as it floated suddenly in view during a quick turn of the head. Having been once found, it was seen with the greatest ease, as well without the ophthalmoscope as with it. It hung, pendulum-like, almost in the axis of the eye, suspended by two or three threads of clot, which had their attachment to the cicatrix of the wound above. It moved from side to side with the greatest freedom.

The important question as to treatment now arose. The man's vision, despite the injury the globe had sustained, and the presence of a foreign body in its centre, was almost perfect. Could it be expected to remain so? Was it not probable that the immunity from inflammation hitherto observed was due to the position of the foreign body suspended in the middle of the vitreous and at a distance from any sensitive structure? Was it not to be expected that the slender filaments, by which this immunity was secured, would before long give way? When they did so, and the bit of steel fell down on to the retina, would it not be certain to set up irritation? Taking all these circumstances into consideration, Mr. Dixon determined to at once attempt its extraction. Long examinations were made as to how best the foreign body could be kept in view, and finally it was decided to operate with the man sitting in a chair before a good light, the head being a little thrown back so as to let the object to be seized fall away from the lens. The lens, it must be borne in mind, was uninjured and perfectly transparent. The incision in the sclerotic was made below at a considerable distance from the cornea, and was large enough to allow of the free introduction of a pair of fine iris forceps of peculiar construction. The quantity of vitreous which escaped was not large. Some difficulty, owing to the impossibility of keeping the foreign body in sight, was experienced in seizing it, but at the third introduction of the forceps it was brought away in their grasp. It proved to be, as had been supposed, part of the edge of a chisel, and was a tenth of an inch long, and weighed a quarter of a grain. Immediately after its extraction the lids were closed with plaster.

No undue inflammation ensued on the operation, and the wound rapidly healed. The lens had not been injured, and retained its perfect transparency. A fortnight after the operation, the man could see to read small type. About a month later, when an ophthalmoscopic examination was made, the deep structures of the eye were found to be perfectly healthy, and the only remnant of the effects of the accident was a simple opaque filament floating in the vitreous.

ART. 106.—*On the Secale Cornutum in Disturbance of the Accommodation-power of the Eyes.* By PROFESSOR WILLEBRAND.

(*Graefe's Archiv für Ophthalm.*, B. 4, 1859; and *Med.-Chir. Rev.*, July, 1859.)

When local hyperæmia is dependent upon a laxity of the walls of the blood-vessels, advantage attends, Professor Willebrand, of Helsingfors, states, the employment of *secale cornutum*. He was induced to use it in these cases by the expectation that a means which acts so specifically upon the unstriated uterine muscular fibre must excite some power over the analogous structure of the arteries, and which its hæmostatic action proves, in fact, that it does. During his investigations he soon became struck with the fact that the heart of persons employing it soon underwent contraction in all its dimensions, and that even within the first twenty-four hours—a circumstance which he has frequently verified since. The first case that came under his care was an example of exophthalmos, accompanied with enlargement of the thyroid gland and hypertrophy of the heart. After a few weeks' use of the *secale* the hypertrophy of the heart and thyroid, as well as the projection of the eye, much diminished. The patient, however, left off the medicine, and the exophthalmos returned worse than ever. Since that period he has employed the *secale* in various cases in which increasing the contractility of the muscles of the blood-vessels or other tissues seemed to be indicated. It was found of especial advantage in a disturbed state of the accommodation-power of the eye, especially induced by overtaxing the organ on small objects with an insufficient amount of light. Children from some of the schools have furnished the author with many instances, and they have always been relieved by the *secale*. He relates a case in which impaired vision was always brought on by sewing or reading, and wherein the signs of some amount of chronic congestion were visible. Relief rapidly followed, and when the affection recurred some months after, it was as speedily relieved. He has also found the *secale* of great use in several cases of acute or chronic inflammation of the eye, and especially in blepharitis and the pustular conjunctivitis of children, the case proving much more rapid, and relapse being much less rare, than when local means alone are relied upon. No benefit has been derived from it in granular conjunctivitis and trachoma.

Proceeding upon the theory of its stimulant action upon the vaso-motoric nerves, the author has extended the employment of the *secale* to other local disturbances of the economy; and, as already observed, he has had frequent occasions of observing its transitory influence in hypertrophy of the heart, without having any reason to believe that it is of any permanent utility in affections of this organ, the heart always returning to its former size soon after the use of the *secale* has ceased. In many cases of both chronic and acute hyperæmia it has proved of great service, and especially in cases of galactorrhœa, and in indurations, tumefactions, and catarrhal affections of the uterus. Also, it has been very useful in enlarged spleen from intermittent fever, and when large doses of quinine have failed. It is especially indicated in the cases of relapsing intermittent depending upon enlarged spleen. In erysipelatous affections, it has often done good service applied externally as a cataplasm. The author formerly gave ten grains *ter die*, but now gives but five, combining it with magnesia, or, when chlorosis is present, with iron.

ART. 107.—*A new Ophthalmoscope.* By Dr. GRAEFE.

(*Medical Times and Gazette*, July 9, 1859.)

An ophthalmoscope fitted with adjusting tubes, rests for the patient's head, &c., by which the merest tyro may be enabled to see the deep structures of the eye, is now in use at the Royal London Ophthalmic Hospital. It is made by a Berlin optician, at the suggestion of M. Græfe and his assistant. Unlike the

one hitherto in use, it is a large cumbrous affair, and requires to be fixed to the table or elsewhere before use. The patient's head being fixed against a rest, the telescope slides of the instrument are adjusted to a proper focus, and this once effected, a dozen observers in succession may look through the eyepiece, and all of them see exactly the same part of the retina without any trouble. It is, indeed, like looking through the tube of a microscope; the object never gets out of focus, and the proper adjustment having been effected by a skilled hand, any one can see the object. The common hand reflector and lens require a long training before they can be effectually used. For purposes of demonstration to a class the new instrument will doubtless soon throw the other out of use, since it prevents the loss of time and risk of annoying the patient's eyes, which a succession of inspections involves. To one well trained, however, so that he can find the optic entrance, yellow spots, &c., with perfect ease, we doubt whether the new instrument will add much. Its cumbrous size will confine it to the consulting room or public institution, but at the latter for class purposes it promises to be invaluable. To the artist also it is a great relief, since it leaves the hands at liberty; and to draw from the ophthalmoscope is, with its aid, just as easy as to draw from the microscope. Its cost as at present made is, we believe, about five guineas. No doubt it will soon be to be had in the London shops.

ART. 108.—*An Ophthalmoscope fixed upon the patient.*

By MR. GILLETTE DE GRANDMONT.

(*Lancet*, June, 23, 1869.)

M. Gillette de Grandmont, a medical student, has just brought before the Academy of Medicine of Paris an apparatus, which fixes upon the patient's face the lens used for examining the eye. The apparatus is composed of a concave plate, which fits the bridge of the nose; to this plate are added ordinary spectacle frames, which, by lying on the circumference of the orbits, give the instrument much steadiness, favored by an elastic band running round the head. To the same plate is fixed, at right angles with the face, a short socket, in the interior of which is a box which carries a lens, movable in every direction. A screw, which moves the box, allows the observer to change the focal distance of the lens. When the apparatus is placed upon the patient, and the lens is brought into the axis of the pupil, the surgeon, taking with his right hand the reflecting mirror, illumines the interior of the eye. This manipulation will be greatly facilitated by the patient's head being directed with the observer's left hand, which remains free.

M. Gillette conceives that this apparatus affords the following advantages:—

1. It prevents the blinking, which is inevitable with other instruments.
2. It fatigues patients less than other ophthalmoscopes.
3. It allows the most inexperienced observer to examine the interior of the eye.
4. It gives facilities for several persons to examine the same patient in succession, without the necessity of moving the instrument.
5. The observer has one hand free, which, being applied to the vertex of the patient, may direct the head to the most favorable position.
6. It is simpler and more readily adjusted than the mounted ophthalmoscope, and does not require, like the instrument held by the hand, a dexterity which is only the result of several months' practice.

ART. 109.—*On a new mode of removing Naso-Pharyngeal Polypi.*

By M. MAISONNEUVE.

(*Comptes Rendus*, Aug. 22, 1869.)

The name given to this operation by M. Maisonneuve is "*boutonnière palatine*." It consists in making a button-hole-like incision in the soft palate, and

in drawing the polypus through this opening into the mouth, where it is an easy matter to apply a ligature or to use the knife. The great elasticity of the parts composing the soft palate allows the polypus to be drawn through a comparatively small opening, and after the operation is completed, the same elasticity will generally serve to close the opening without the help of sutures. The direction of the button-hole is from before backwards. M. Maisonneuve has already performed the operation, and with the most satisfactory results.

ART. 110.—*On Coloring of the Lips by Tattooing after Cheiloplasty.*
By Dr. SCHUH.

(*Wien Med. Wochenschr.*, xlvii., 1856; and *Med.-Chir. Rev.*, July, 1859.)

Two years since Professor Schuh performed cheiloplasty in the Vienna Clinic, upon a girl in whom one-half of the nose, together with the vomer and the whole of both lips, were wanting. The flaps for the lower lip were supplied from the region of the lower jaw and the neck, and that for the nose from the forehead, while the skin of the arm was employed for the upper lip. The connection of the flap with the arm was divided on the tenth day, and all went on well, excepting that the new upper lip, at its lower edge, owing to the cicatricial process, was covered with corion. The red lip-color was wanting to give the mouth an agreeable appearance; and Professor Schuh determined to endeavor to imitate this by tattooing. He first of all tried cochineal as a coloring material, but this produced a too pale red, and he then had recourse to cinnabar, which gave rise to a surprisingly natural color.

The following is the procedure: the cinnabar is made into a thin paste with water, and the limits within which the pigment is to be applied are traced with a pen and ink, in imitation of the direction of the natural redness of the lips. For forcing the pigment into the organic substance, a bundle of sharp-pointed pins is employed, each pin being wound round with waxed silk from its head to within four lines of its point. Ten or twenty such pins are tied into a bundle with thread, dipped into the coloring substance, and repeatedly forced two or three lines deep into the lip. The margin marked by the ink is first to be colored, and then the other portion, dipping the points into the pigment again as this is wiped off. Only a slight bleeding ensues, and the pain is very little, in consequence of the diminished sensibility of transplanted parts. Any of the pigment remaining on the surface should be left there until next day, and if any part is found to be less red than the others this can be easily remedied.

How long this redness will remain unchanged must be determined by further experience. In Professor Schuh's case it had become nowise paler at the end of a year and a half; and he believes that the introduction of the process of tattooing into the field of plastic surgery is not to be despised.

ART. 111.—*On the "Elliptical Artificial Tympanum."*
By Dr. J. H. CLARK.

(*Amer. Med. Monthly*, April, 1859.)

The material of this instrument is the same as that employed in the manufacture of some which are found in the shops of Toynbee's pattern, but the form is wholly different. The form of Toynbee's drum is round, with a staff straight, or slightly inclined from the perpendicular, while the one here described is egg-shaped or elliptical, with a staff nearly circular. The point of suspension is not, like that of Toynbee's drum, in the centre, but in one end, which causes it to assume the desired concavity of an ellipse. After being worn a short time, it permanently assumes a concavo-convex form, the concavity looking inward, which greatly increases its effectiveness, and in shape it seems as far as possible to supply the loss of the natural tympanum. The form and direction of the staff on which the drum is suspended is curved down-

ward, adapting itself to the shape and form of the canal in such manner as to be insulated, and in no case to touch the sides of the canal.

The drum is elliptical in shape, about half an inch in length, and three-eighths of an inch in breadth. It generally requires reduction. It may be cut to any size.

The staff is about seven-eighths of an inch in length, and is bent to the form before mentioned. It terminates without a ring, the end of the staff being cut off. If a ring is made to facilitate its removal, it will come in contact with the lower and outer edge of the meatus auditorius externus, producing unpleasant vibrations whenever the head is suddenly moved, and confusing the patient. The drum should be so introduced that the wire curves downward. The directions for its introduction are, in the words of a patient who had used the instrument with advantage: "I moisten not only the drum, but the ear, with a pencil dipped in water or glycerine. If the canal be dry, I find it of great service to apply the wet brush to a cake of fine soap, and thus applying to the ear weak soapbuds. This seems to make the drum adhesive, and it retains better its position. My ear is so dry that merely wetting the drum will not answer. If any do not find benefit from the artificial tympanum, I believe it is often for the want of judgment with regard to their introduction into the ear. I find that great care is needed with regard to holding the wire. I find that the proper direction to be given the staff is to incline it *downward and inward*, holding it tightly between the thumb and forefinger. I pass it down till I feel a gentle roar; I then press on gently with the forefinger only till I hear sound break distinctly. I find it very important not to push the drum in *too far*; I find if I do this that I do not hear so well as when the drum is out; I find that repeated attempts are frequently necessary to withdraw the drum entirely and take a fresh start, for I find it important to give it the proper direction on its first introduction."

ART. 112.—*Suggestions of improvement in Tracheotomy.*
By Dr. D. BRAINARD.

(*Amer. Journ. Med. Sciences*, July, 1859.)

In order to prevent hemorrhage, Dr. Brainard proceeds thus:—

"Having incised the skin and fascia by successive and careful incisions, I press the sterno-hyoid and sterno-thyroid muscles to each side with the fingers, and thus expose the thyroid body. This effected, I passed under the isthmus a director curved, or an aneurismal needle. This was followed by a common suture needle, which may be passed with the blunt end foremost, armed with two very strong ligatures. A ligature is then tied very firmly on each side, and the isthmus of the thyroid body divided between them. A little dissection with a blunt instrument denudes the trachea to the required extent, and an opening can be made without danger of a drop of blood being drawn into it.

"The ligatures which have been thus secured, serve the purpose of fixing the trachea, if desirable, and they may be tied behind the neck so as to raise it forward, and keep the wound open. I never open the trachea until the hemorrhage is stopped, and a large surface of it has been quite denuded.

Dr. Brainard's next object is to keep the opening in the trachea pervious without resorting to a tube. "The objections to a tube are twofold: 1st. When the operation is performed for the extraction of a foreign body, it prevents its exit; and it is desirable to leave this opening in such a state that the foreign substance may escape whenever it becomes loosened from its situation in the bronchia. 2d. In tracheotomy for croup, the prolonged sojourn of the tube has been considered by the most eminent surgeons, as a cause of the pneumonia which are so frequently the cause of death.

"The necessity for using the tube I avoid by the following means: Having denuded the trachea, insert a small suture needle, armed with a ligature, beneath two of its rings. Withdraw the needle, and, drawing gently upon the

thread, make a semi-circular incision on one side, so as to form a valve, readily opened by drawing upon the thread. The opening thus formed can be kept patent or be allowed to close at will.

"This is a matter, perhaps, of much greater consequence than might be supposed without reflection. Most surgeons have found their operations for tracheotomy less successful than they had reason *a priori* to expect, and this has been attributed to the direct entrance of cold air into the lungs. Troussseau and Guersent have both advised that the air inhaled at that time should be quite warm without being too hot."

(B) CONCERNING THE CHEST, ABDOMEN, AND PELVIS.

ART. 113.—*Two cases of recovery after Gun-shot wound through the Liver.* By (1) Mr. PARTRIDGE, Assistant-Surgeon, Lucknow Field Force; and (2) Mr. HARE, Surgeon, 2d Europeans.

(*Indian Annals of Med. Science*, Jan. 1, 1859.)

1. *Mr. Partridge's Case.*—Captain —, *et.* 31, has been thirteen years resident in India; temperament bilious; habits temperate.

He was dangerously wounded by a musket-shot on the 9th March, 1858; the ball entered the body in the medial line, immediately below the ensiform cartilage, and passing backwards, was excised about five inches from the spine, on a level with the margin of tenth rib; at first, Captain — suffered very severely from irritability of the stomach, which however yielded after a short time to the influence of sedatives and salines, and had entirely disappeared previous to his admission into the field hospital, on the 22d March.

There has been a very copious discharge of bile from both wounds, proving the liver to have been injured by the ball in transitu, and a small portion of the margin of the rib came away one day with the dressings, but in spite of these indications of the severity of the lesion, he has progressed most favorably from the commencement; the wounds are now nearly healed, and he is perfectly fit to travel.

The following further information relative to this very interesting case has been communicated by Mr. Partridge at the request of the Editors.

"Captain —, from the first, progressed satisfactorily; he had no bad symptoms during the whole time he was under my charge in the field hospital, bile was discharged from both openings, and there was slight exfoliation of the tenth rib by the posterior wound.

"He went home to England in the same steamer that I did, and from the fatigue of the voyage suffered slightly from pain in the hypochondriac region; after spending some time in the Channel Islands, however, and enjoying thorough rest, his wounds closed over, and when I saw him last, on the 2d December, he was in as perfect a state of health as he had ever enjoyed—complained of no pain, and was able to take exercise in every way as freely as ever.

"I really do not think there are any particulars to be added to the statement of his case, his progress towards recovery was so uniform throughout; except, perhaps, that the matter vomited in the stage of irritability of the stomach, which supervened on the receipt of the wound, was slightly sanguineous in character, owing, probably, to sympathetic congestion of the gastric mucous membrane.

"The main points of the case appear to me to be, the undoubted evidence of the severity of the original lesion, and the perfect recovery under the combined influences of a good constitution, perfect rest, and an antiphlogistic regimen."

2. *Mr. Hare's Case.*—Lieutenant — was sent to hospital in a dooley from one of our distant picquets during the siege of Delhi. On his arrival, he said

himself that he felt he was mortally wounded and was very faint. On examining the wound, the ball was found to have entered the liver and passed through it. The ball was found on the opposite side, and near to the spine, where I extracted it. I gave him a full opiate and placed him in bed.

The next morning he seemed to have recovered a little from the shock, but his pulse was still weak and thready, and his countenance anxious: towards the evening, he complained of constant short cough, as if the diaphragm had been touched by the ball in its course, which, from its direction, was very probable. The treatment ordered was repeated small doses of morphine mur. $\frac{1}{4}$ gr. dissolved in dilute murat. acid every four hours, and occasionally when the symptoms were more urgent, solid opium every four hours, with water dressing to the wound.

On the evening of this day, Lieutenant — was in a state of prostration, and it was not supposed possible that he could live through the night: towards morning his lower extremities became quite cold, and his pulse thready. Stimulants, brandy, and wine, with arrow-root, were administered freely, and he rallied again as the day broke.

From this time he improved considerably; soup and arrow-root, wine and brandy, were given frequently. His bowels had not been moved, but purgatives were carefully avoided.

The principal symptom he now suffered from was a short spasmodic cough from irritation of the diaphragm. The wound was now dressed, and healthy pus escaped. The wound could be seen and traced into the substance of the liver. The same treatment was continued, of opiates at night, and free support and nourishment during the day, with a liberal allowance of brandy.

July 3d, 1857.—The bowels up to this date had not been open, and he complained of uncomfortable feelings in the abdomen, which seemed to arise from constipation. Ol. ricini \mathfrak{z} ij. was therefore prescribed. This opened his bowels with temporary distress, but in the evening, when he recovered from this, he felt comfortable and better.

Lieutenant — now recovered rapidly, and with the exception of a short and frequent diaphragmatic cough, suffering little pain or inconvenience till September 6th, when he had symptoms of intermittent fever and diarrhoea: for this, I prescribed pil. hydrarg. grs. ij., quinae disulph. grs. iv., opii gr. \mathfrak{z} , every third hour, and it was continued through the next day.

From this time all medical treatment ceased, beyond regulating his diet, which, however, was always liberal and nutritious. He was able to move about towards the middle of September, and on October 3d, went on sick leave to the Hills, where he has continued in good health.

March 2d.—Lieutenant — sends me the following report of his health, from Dr. Niebett, at Simla, since his residence there.

Lieutenant — came under my care on his arrival at Simla, in the beginning of October; he was suffering from fever, probably in consequence of the fatigue of the journey, and was weak and had no appetite; he has since then frequently had attacks of fever, and occasionally pain in the liver if he attempts to ride or take strong exercise. The treatment has been chiefly the use of quinine with other tonics.

ART. 114.—On "*Réduction en bloc ou en masse.*" By Mr. BIRKETT,
Surgeon to Guy's Hospital, &c.

(Proc. of the R. Med. and Chir. Soc., June 14, 1859.)

The term "*réduction en bloc ou en masse,*" has been given by writers on hernia to those cases in which the hernial protrusion, together with its investing sac, has been pushed into the abdomen by the efforts made to reduce it. The principle was first enunciated by Le Dran, and since then it has been generally accepted as occasionally occurring in all forms of hernia. The object of this inquiry is to ascertain—

1st. The applicability of the term to inguino-scrotal hernia exclusively.

- 2d. The actual nature of the lesion.
- 3d. The hernia in which it most commonly occurs; and
- 4th. The practicable influences deducible from the cases on record.

The cases published by various surgeons are divisible into two classes:—

1. Those in which the patient died without the strangulated bowel being relieved.
2. Those in which the constriction around the bowel was removed.

A brief history of some of the cases is given to show the advance made in the science of the anatomy of the hernial sac, the causes of the impediment to the reduction of the hernia, and the way in which this accident was discovered. The lesion described in these cases is of three kinds: 1st, when the hernia is pushed out of sight, and is found after death between the peritoneum and the abdominal walls; 2d, when the hernia is found after death in a pouch within the abdominal walls; 3d, when the orifice of the hernial sac has been torn off.

From the facts recorded by the several writers the following conclusions are deduced:—

1. That although the hernial sac is *displaced*, it is not detached from its serotal envelopes.
2. That the practicability of opening the hernial sac in the inguinal canal is good evidence that it was not pushed into the abdomen.
3. That the difficulty in bringing out the sac containing the hernia from the abdomen, when it is said to be therein, is evidence that its connections must be more firm in that region than would result from the mere pushing there.
4. That the situation of the hernia has been pointed out in some cases, although the exact nature of the lesion has not been fully described.
5. That the details of the case are not in accordance with the presumed, or accepted, conditions of the accident.
6. That the evidence of the practicability of the patient, or a surgeon, reducing into the abdomen a *serotal hernia*, together with the sac still strangulating its contents, is, at the present moment, equivocal.
7. And, therefore, that the term "*réduction en bloc ou en masse*" is not so applicable to these cases of oblique inguino-serotal hernia as to other species.

The author's explanation of the mechanism of the injury is next detailed, with the assistance of diagrams, and in order to prevent any perplexity arising from the use of anatomical terms, a few definitions of the parts immediately concerned are given. The mechanism of the lesion seems to consist of, first, a dilatation of the neck of the hernial sac by the force employed to reduce the hernia, which is prevented passing into the peritoneal cavity by the contracted orifice of the sac: secondly the laceration of the dilated neck of the sac, which permits the escape of its contents into the loose connective tissue between the peritoneum and internal abdominal fascia. Explanations are next offered of the manner in which the intro-abdominal pouch may sometimes be formed, although from the extreme rarerous of the occurrence, the fact of this slow development is very questionable.

Part III is devoted to an analysis of the cases recorded by numerous writers, and which the author reduced to the form of tables. These tables accompany the paper. The following facts are especially considered:—

1. The age of the patient when the accident happened.—It may occur at any age between ten and thirty; but it has been most frequent between thirty and forty years of age.
2. The age of the patient at the time the hernia was developed.—In a large proportion the hernia was developed before thirty years of age.
3. The variety of inguinal hernia.—All were *oblique* inguinal, a very large majority being in the scrotum. Those cases of hernia in which the protrusion passed into the vaginal process of the peritoneum constituted a majority. The importance of the circumstance is demonstrated, and an anatomical comparison is instituted between these cases and those inguinal hernia of slow and gradual formation.

4. The side of the testis has varied in several cases, and it is an important fact to remember.

5. The protruded viscus has been either reducible intestine only, or intestine with irreducible omentum, but in the majority of the cases reducible intestine; and generally ileum formed the hernia.

6. It appears that this complication has occurred in cases of quite recent hernia, as well as in those of long standing.

7. The local means by which the hernia was pushed from the scrotum were employed in some cases by the sufferer, in others by the surgeon; and in some whilst the patient was under those influences which are employed to diminish muscular tonicity, especially chloroform.

8. In the majority of the cases there has been a local indication that the hernia was not returned into the peritoneal cavity. In all, constitutional symptoms have clearly demonstrated the fact.

In the fourth part the practical deductions from the foregoing facts and observations are stated. They refer, first, to the diagnosis of the case; and, secondly, to its treatment. The diagnosis may be formed from the age of the patient; the age at which the hernia was developed; the variety of the hernia; its descent into the vaginal process of the peritoneum; the site of the testis; the viscera constituting the hernia; a disposition to the recurrence of the hernia after it is supposed to be reduced; the disappearance of the hernia after the application of the taxis, assisted by persistent constitutional indications of strangulated intestine; and local indications more or less distinctly marked. The treatment consists in immediately exploring the inguinal canal in every case in which the slightest suspicion of this accident exists; in freely exposing the internal abdominal ring, and, whilst returning the protrusion into the peritoneal cavity, in taking great care that a part of it does not glide through the laceration in the sac outside the peritoneum. Preparations and drawings were exhibited.

ART. 115.—On the radical cure of Hernia: with an account of an improved instrument, and notes of forty cases. By REDFERN DAVIES, Esq., Surgeon to the Birmingham Workhouse Infirmary.

(*Medical Times and Gazette*, Aug. 3, 1859.)

In cases of scrotal and femoral hernia where the tissues are relaxed and the rings of large size—say, capable of admitting easily two, three, or even more fingers—considerable difficulty and disappointment is experienced in endeavoring to effect a cure by the first operation; and it has occasionally happened to others, and to the author, to be obliged to repeat the process.

From a practical acquaintance with the subject on the living, and repeated trials and experiments upon the bodies of the dead who have been affected with hernia, Mr. Redfern has been led to believe that the cause of such failures is not attributable to any fault in the theory of Wutzer's method, but to a defect in his instrument, and upon the following grounds he believes that these failures will be obviated by the adoption of the accompanying mechanical improvements in the instrument.

Upon examining a case of scrotal rupture in which the operation for the radical cure has failed (supposing, of course, that it has been properly managed, together with the proper after-treatment), the rings and canal will be found to be obliterated probably for some three-fourths of its extent, or there may only remain an aperture which will with difficulty admit a crowquill; and thus, though the patient may be greatly benefited, and with the aid of a truss resume his duties, a radical cure has not been effected.

That portion of the canal and rings which have been blocked up is invariably that which is nearest the abdominal walls. "The gut slips down behind the plug," are the terms in which both surgeons and patients express the mishap

which has occurred, and the reasons for this, Mr. Redfern Davies believes, are as follows:—

The anterior or superior layer of the invaginated integument is subjected to not only the pressure of the wooden plug to keep it in apposition with the opposed surface of the rings and canal, but also to the direct pressure of the compressor. The compressor exerts its influence exclusively upon the parts included between it and the upper surface of the said wooden peg and in no wise affects the posterior parts, viz., the posterior layer of invaginated integument and posterior surface of canal and ring, whose only chance of being kept in apposition depends upon the accuracy with which the plug fits the canal, etc., as a whole.

The floor of the canal, etc., especially where the tissues are lax, as generally occurs in cases of old and large ruptures, does not present in the same manner an opposing resistance to the wooden plug as does the compressor, and thus, should the two former be not very accurately adapted the one to the other, adhesion cannot even be expected to occur.

The mouth, or internal opening of the canal, is funnel-shaped, with the posterior surface the more sluped. Consequently, if there be any weak point, it will be there, and it is sure to receive all the shocks of the gut during the process of cure.

Besides it is evident that a cylinder, even closely applied to the rest of the extent of the canal, cannot fill up its funnel-shaped mouth, but must leave an interspace, which will be on the posterior surface.

And, again, it is not always practicable to introduce to a sufficient extent a solid plug, which would best fit the internal ring, by reason of the resistance of the other structures to its passage, besides entailing an endless variety of such plugs.

By the adoption, however, of the principle now proposed, viz., a plug, whose lower half is capable of expanding, these difficulties are severally overcome.

A glance at the diagram will render its application at once evident: it will be seen that by turning the handle and thus causing the lower half of the plug to expand, that the pressure upon the parts included between the upper portion of the plug and the compressor, is left in exactly the same condition and



relations as in the usual instrument, but that a force is exerted upon the posterior portions of the invaginated integument, canal and rings, which it gently, but firmly, retains in complete apposition one with the other.

By reason of the greatest point in its expansion being at the extremity of the instrument, and gradually tapering, two objects are accomplished: first, the funnel-shaped mouth, and the internal opening, is filled with a plug, whose sides are inclined towards its own—the invaginated integument being, as it were, modelled upon it; and, secondly, the rest of the canal is at the same time subjected to no undue pressure.

The principle adopted by Mr. Spencer Wells is likewise made available, viz., having the transverse diameter of the instrument very much greater than the

antero-posterior, whereby the shape of the ring is altered, it being converted into a mere chink, and thus affording an additional security against descent of the gut; and so leaving as small as possible an amount of space between the opposed surfaces of the *doigt de gant* to fill up when the instrument is removed. A thin India-rubber finger-stall caps the end of the instrument, preventing any soft parts getting between the blades.

Mr. Redfern Davies adds a table of cases, forty in number, which embraces the three varieties of oblique, ventral, and femoral hernia, occurring in ages varying from one year to sixty-five, and in both sexes. From this table it will be seen that thirty-seven were cured, five requiring the operation to be repeated, and that two failed (in one of which smallpox appeared on the day after removal of the instrument). In this list Mr. Davies does not include the more recent cases upon which he has operated.

ART. 116.—Recovery under very unfavorable circumstances after Herniotomy.
By Mr. HILLMAN, Assistant-Surgeon to the Westminster Hospital.

(*British Med. Jour.*, Oct. 1, 1859.)

The chief features of interest in this case are:—

1. The total absence of any evacuations *per anum* until the tenth day after the operation.
2. The persistence of the vomiting for fifteen days after the operation; the vomited matters being distinctly fecal during a portion of the time.
3. The occurrence of pyæmic symptoms with deposits of pus, in patches of various sizes, under the cuticle, over a great portion of the body, and the symmetrical crippling of the little fingers of both hands from purulent inflammation.

CASE.—S. H—, æt. 31, an omnibus-conductor, admitted August 22d, 1859, states that he had a hernial protrusion in the left groin eight or nine months ago, for which he came into hospital and had the protrusion returned. He has not worn a truss since this occurrence, and there has usually been a fullness of the inguinal canal of that side. On August 21st, whilst carrying his child, after long walking, the swelling became suddenly much larger, and extended downwards into the scrotum, giving rise to considerable pain and vomiting.

On admission, there was a large oblique inguinal hernia on the left side, distending the scrotum and the inguinal canal. The taxis was employed by the house-surgeon whilst the patient was in a hot bath, but without effecting any diminution in the swelling. Mr. Hillman, on being sent for, finding the tumor excessively tense and painful, the abdomen tender on pressure, and the patient in great suffering, with a cold, clammy skin and a slow and feeble pulse, determined to operate immediately, without any further preliminary treatment.

Chloroform having been administered, an incision, three inches in length, was made over the upper portion of the swelling, extending about equally above and below the internal abdominal ring. An attempt was made, by successive division of the coverings, to return the contents without opening the hernial sac; but as this was found impracticable, the sac was opened, and the stricture (situated in the neck of the sac itself) having been divided, the hernial contents (which consisted of a very large quantity of omentum and a long loop of small intestine, with scarcely any serous liquid) were returned into the abdominal cavity.

The intestine and omentum were both much congested, but did not present any gangrenous appearance or odor. The inguinal canal was ascertained to be perfectly clear, and the wound was brought together by stitches, compress, and bandage. The patient expressed himself as much relieved by the operation.

No action of the bowels occurred until the tenth day after the operation: the vomiting meanwhile continuing unchecked by the remedies employed (effervescent draughts, hydrocyanic acid, chloric ether with sulphuric acid, ice, turpentine, and mustard omentations), attended with considerable distension of the abdomen, a weak and rapid pulse, a dry and brown tongue, with considerable prostration, the patient being apparently kept alive only by the free administration of brandy, of which as much as twenty ounces were frequently given during the twenty-four hours.

On the tenth day after the operation the bowels were slightly relieved, and on the eleventh there were several copious dark-colored evacuations, containing abundance of bile. The vomiting now became much lessened.

During the next three days there was considerable diarrhoea, and numerous pustules and blebs of various sizes made their appearance over the body, especially over the lower part of the back, and the little fingers of both hands presented much the appearance of severe whitlows.

The purulent matter was allowed to escape by incisions made into the larger pustules and into the fingers.

He is now (September 23d) slowly recovering from a state of great prostration, under the use of nutritious diet and quinine.

ART. 117.—*On the treatment of Fissure of the Anus by injections of Rhatany.*
By Dr. TROUSSEAU.

(*Med. Times and Gazette*, Feb. 5, 1859.)

"We have seen recently," writes the foreign correspondent of the journal from which this quotation is made, "a somewhat deep and painful fissure of the anus successfully treated by M. Trousseau, by means of injections of rhatania administered several times in the twenty-four hours, together with the use of mild laxatives. It resulted from painful defecation, the bowels having been constipated for some days previously. The sufferings of the patient were intense, and lasted for fourteen hours consecutively. In reference to anal fissure, Trousseau denies the old theory, that it is produced by spasmodic action of the sphincter; on the contrary, he believes that it is most generally the result of irritation caused by the acrid discharges of the vagina finding their way to the anal mucous membrane, and completed during a state of constipation. Although spasm of the sphincter is almost an invariable accompaniment of this painful complaint, it can only, according to Trousseau, be regarded as an effect; in other words, the spasmodic action is entirely voluntary, and kept up by the patient in order to save herself the pain to which the irritable fissure gives rise, as is the case with a child who, when laboring under a chapped lip, purges up its mouth when it eats or laughs. M. Jobert adopts the same view as Trousseau; both condemn Boyer's method, which consists in the division of the fibres of the sphincter muscle, as altogether unnecessary."

ART. 118.—*On Fistula in Ano.*
By Mr. J. R. LANE, Surgeon to St. Mark's Hospital for Fistula.

(*Lancet*, April 23, 1859.)

After describing his views respecting the situation and mode of formation of the different kind of abscesses which are followed by fistula, Mr. Lane says it is erroneous to suppose that abscesses in the neighborhood of the anus are all but certain to give rise to this complaint. That the great majority do so is undoubtedly the case; but the author thinks that if early and free incisions were more generally practised, permanent closure of the cavity, especially in cases of acute abscess, would frequently take place. He has met with cases repeatedly in which he thought a fistula was inevitable, but in which the incision had, nevertheless, healed soundly and rapidly. Of the three varieties of fistula, the complete was the most common; the blind external was next in order of frequency, and the blind internal the most rare. Of 68 cases upon which the author has operated in St. Mark's Hospital during the last eight

months, 46 were complete, 20 were blind external, and 2 were blind internal. Sir B. Brodie had maintained that an internal aperture was always to be met with if sought for in the proper situation, and would not therefore admit the existence of an external blind fistula at all. In the twenty cases alluded to, however, no internal communication could be found after the most careful search, not only with the probe, but also by injecting fluid with a small syringe into the sinus, which method would frequently, by the passage of the fluid into the bowel, demonstrate the existence of a communication, even when it could not be discovered with the probe. In operating on these cases an artificial communication had been established either with the bistoury or the director in the usual way, and all had healed soundly and well—a result which would scarcely have taken place had an internal aperture existed, and had he failed to include it in the incision. The position of the internal aperture of a complete fistula was, as now generally understood, almost invariably placed just above the sphincter muscle, although the sinus itself might often extend some distance higher up. The author has only met with three exceptions to this rule, and in these he has found it placed two inches or more within the anal aperture. In the cases in which the internal aperture was in the usual situation, but the sinus extending higher up, he has always found it sufficient to lay open the lower part of the sinus through the internal communication into the rectum, without meddling with the upper part. He thinks it advisable, however, in such a case always to have a free incision through the sphincter muscle, in order that there might be a ready outlet for any matter that continued to be secreted. In the exceptional cases, where the communication was placed higher up, it was, of course, essential to include it in the incision.

After some further remarks on the operation for fistula and its after treatment, Mr. Lane refers to the association of fistula with phthisis pulmonalis, which he believes has been over-estimated. M. Andral's statement, that he had examined 800 persons with phthisis, and only found one who had fistula, was well known, and the author believes that phthisis, by its debilitating influence, might conduce to abscess and fistula, and, on the other hand, that the drain from the latter might accelerate the development of tubercle in those predisposed to it. Whether an operation for fistula should be performed in phthisical persons, he decides in the affirmative; for in some half a dozen cases of this kind, not only did the wound heal favorably, but a decided improvement in the health of the patient resulted. It had been stated that an indurated condition of the internal aperture was a characteristic of fistula in phthisical persons. The author does not believe it to be a sign which could at all be relied on, having seen fistulae with a perfectly smooth condition of both external and internal apertures in persons suffering from phthisis, and also a highly callous condition of those apertures in persons in whom there was no suspicion of pulmonary disease.

ART. 119.—*On Stricture of the Rectum.*

By Mr. ARMSTRONG TODD, Surgeon to the St. Marylebone Infirmary.

(*Medical Times and Gazette*, Aug. 6, 1859.)

Mr. Todd objects to the common rectal bougie, on the ground that an instrument large enough to distend the rectum to its proper size cannot be borne by the anus without causing much annoyance and distress to the patient. He also describes an instrument which is free from this objection. This instrument is drawn in a partially extended position, so as to show its action more perfectly. It consists of two blades of finely-polished steel, forming, when closed, a small-sized oval bougie. These blades are about three inches and a-half long, rounded above and below, and made to separate from and approach each other in a parallel direction, by mechanism contained within. Beneath these is a round stem, a quarter of an inch in thickness, upon which the anus and sphincter are allowed to contract. The parallel movement of the blades is effected by four slight bars of steel, placed in pairs—one pair crossing each

other above, the other below, united at their intersection by a pivot. The extremities of each pair at the centre of the blades, are connected together and to the centre of the blades by means of hinges, their distal extremities being permitted to traverse a groove within the blades. The stem before spoken of is hollow, and is continued above, within the blades, into a fork, the extremity of which is attached to the pivot connecting the intersections of the superior cross-bars. Through this hollow stem passes a rod, which also ends above in a fork, attached in a similar manner to the pivot through the intersection of the inferior cross-bars. The other extremity of this rod is a screw, on which is a graduated scale; to this a thumb-nut is fitted, having a rim on its upper part, which revolves in a groove in the extremity of the outer or hollow stem.

The effect of this mechanism is, that when the nut is turned from right to left, the inner rod is pushed up, and the intersections of the cross-bars are made to approximate, the horizontal diagonal of the central quadrangle becomes, therefore, elongated, and thus the blades are separated. A contrary movement of the nut draws down the rod, and brings the blades together. The screw is made so fine, that dilatation can be effected by an exceedingly gradual movement.

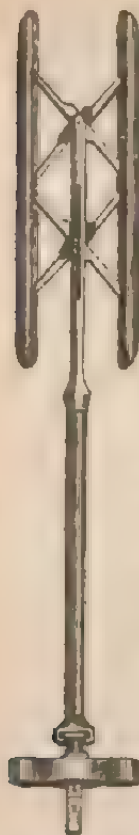
Mr. Todd relates a case in which he used this instrument with success, and he suggests that it may be found useful in other cases where dilatation is required.

ART. 120.—*Unusually large vesical calculus, removed by Recto-vesical operation.* By Mr. SOUTHAM, Surgeon to the Manchester Royal Infirmary.

(Proceedings of Med and Chir. Soc., June 28, 1860.)

CASE.—The patient, *et* 21 years, was admitted into the Manchester Royal Infirmary with symptoms of vesical calculus, from which he had been suffering about sixteen years. On sounding him the stone was found to be of large size. He was emaciated almost to the lowest point compatible with life, unable to leave his bed, and suffering from a constant desire to empty the bladder, with severe pains in the

loins and the lower part of the abdomen. The urine was loaded with pus, which on standing formed a thick white viscid sediment. It was highly ammoniacal, and a very considerable quantity of albumen was precipitated by boiling and the addition of nitric acid. Operative procedures were deemed inadvisable, until the hectic fever and great debility under which he was laboring were relieved. He was therefore placed on nutritious diet, with eight ounces of wine daily, and the bicarbonate of potash with opium, and large dilution with water, were given to allay the irritation of the mucous coat of the bladder. Under this treatment the patient's strength so much improved, that in a month the question of operation had to be entertained. Judging from the long period of sixteen years, during which the stone had been growing, the grave effects it was producing on the health of the patient, and from the more certain evidence of examination by the sound and the finger introduced into the rectum, I was convinced that the concretion was of large dimensions. The bladder had become so contracted by long inflammation, that only a few ounces of fluid could be injected into it; the general health was still precarious, and to crown the embarrassment there was still a copious deposit of albumen in the urine. The question that suggested itself was the following: did this indicate degeneration of the kidney? If so, any thought of operation must be renounced. To the solution of this difficulty the microscope now afforded valuable assist-



ance, and by this instrument the urine was repeatedly examined to discover whether any fibrinous casts of the uriniferous tubes were present: none, however, were found, nor any reliable indications of renal epithelia. And on the more accurate comparison of the quantity of pus and blood in the urine, with the amount of albumen precipitated by nitric acid and heat, the conclusion was come to that the albumen came from no higher source than the bladder itself, and was simply deposited from the liquor puris, and small quantity of blood always present in the urine. As the kidneys were considered not to be implicated, an operation was determined upon, and on the 17th of December the calculus was removed by the recto-vesical section.

Chloroform having been administered, and about half a teacupful of warm water injected into the bladder, a scalpel guarded by the finger was introduced into the rectum, and the sphincter and lower part of the anus completely divided. The urethra was opened anteriorly to the prostrate portion, and the finger passed through the wound into the bladder. As was suspected, the calculus proved to be of large dimensions. Accordingly, the wound in the prostrate was enlarged. By means of the finger, the rest of the prostrate and neck of the bladder were sufficiently dilated to admit a pair of forceps. On the introduction of the forceps it was found to be impossible to grasp with them so large a stone, as the contracted and indurated state of the bladder prevented the divergence of the blades. A scissor was now used, but with no better success; the stone could not be disturbed from its original position. Finding it difficult to lay hold of the calculus in the usual way, I had the screw of a straight-bladed forceps removed, that the blades could be separately introduced, one over and the other below the stone. The handles having been brought together and the screw reinserted, the calculus was grasped and slowly extracted, the operation occupying from ten minutes to a quarter of an hour.

The calculus measured eight inches in circumference in one direction, and seven in the other. It consisted principally of triple and earthy phosphates, with a nucleus of lithic acid. It weighed 4 oz. 6 dr and 25 grs.

The patient had an excellent recovery, no constitutional disturbance of any amount followed the operation.

The bowels were restrained in their action for a week by the administration of opium. Up to the 31st of December, all the urine passed by the rectum; it now commenced to come by the urethra. No inconvenience was at any time experienced from the passage of fecal matter through the urethra. The pus and albumen gradually increased in quantity.

The fistula was not interfered with until the 18th of February, when, as some of the urine continued to pass through the rectum, it was examined. It appeared to be in the membranous portion of the urethra, and about a quarter of an inch long. It was touched once with nitrate of silver, and subsequently on two occasions the electric cautery was applied. He left the hospital on the 28th of April cured, having for the three weeks previously been free from all signs of the fistula, during which time he was engaged in assisting the nurses in the wards.

Mr. Southam, in his remarks, does not advocate this operation except in special cases, considering that the lateral method is the safest in the majority of instances.

He was induced to resort to it in the above-mentioned patient, on account of the presumed large size of the stone, the indurated and contracted state of the bladder, and the unsatisfactory state of the general health.

After referring to the risks which attend the lateral method, where the calculus is of large dimensions, he alludes to the objections urged against the recto-vesical operation, the principal of which is its liability to the formation of a permanent fistula.

Thus, he believes, might to a great extent be avoided, if the incision into the urethra were limited to only a part of the prostatic portion.

He considers it would be seldom necessary to extend the excision through the neck of the bladder, experience having convinced him that the obstacle to the extraction of large calculi by the lateral method exists more to the surround

ing structures than in the prostate, which readily yields to steady and cautious dilatation. In the case now related, there was abundant proof of this; indeed, a calculus of much larger dimensions than the one described could have been extracted with out difficulty by the same incision. He proposes to call the operation the recto-urethral.

ART. 121.—*On the treatment of Phymosis without the knife.*

By Mr. DARBY, of Bray.

(*Dublin Medical Press*, May 18, 1856.)

Mr. Darby relates two cases, from a series of eight, in which he adopted a plan which may in some instances supersede the necessity of any more serious operation.

CASE 1.—On the 3d of May, 1857, a lad, æt. 12, came under my care; he had phymosis; his prepuce was very much inflamed and thickened; a glairy mucopurulent discharge issued in considerable quantity through the orifice, which was excoriated, causing severe pain on micturition. I was reluctant to use the knife, but felt it necessary immediately to adopt some means to relieve his sufferings. It occurred to me that the introduction of a piece of lint between the prepuce and the glans might afford relief, and I forthwith inserted a narrow slip of lint dipped in black-wash, applied water dressing externally, ordered him to take a saline aperient, and to go to bed. Next day I removed the lint and replaced it by a larger piece; on the following day I stuffed the prepuce as full as I could pack it, and on the 6th (the third day of treatment) we could without difficulty draw the prepuce backwards and forwards over the glans. The removal of the phymosis was complete.

CASE 2.—In October, 1858, a man, æt. 23, consulted me for a gonorrhœa he had contracted about three months previously. On examination, I found phymosis, with a considerable amount of thickening and induration of the prepuce, with evidence of warts and ulcers within. I proceeded to introduce some lint wet with black-wash, but the attempt gave him so much pain that he refused to submit, and I was obliged to substitute oiled lint—a very slender strip of which he allowed me to introduce, water-dressing was applied, and purgatives and rest prescribed. On each of the two following days I introduced a strip of lint wet in black-wash increasing the size of the plug each day. On the fourth day, he (finding himself better, and being most anxious to escape an operation he had witnessed in one of his acquaintances) volunteered to introduce a plug himself; this he performed three or four times daily with such effect, that on the seventh day he retracted the prepuce.

“Although the eight cases I have so treated have been satisfactory in their results, I am not so sanguine as to suppose *all* cases will yield to this simple mode of treatment; but I do confidently believe, if fairly tried, it will prove successful in the great majority of cases, and it may be assumed that where it does succeed the patient will have been saved from mutilation.

ART. 122.—*On the value of Internal Incision in Obstinate Strictures of the Urethra.* By Mr. HENRY THOMSON, Assistant-Surgeon to University College Hospital, &c.

(*Medical Times and Gazette*, Oct. 29, 1859.)

There are two classes of cases to which the author conceives internal incisions to be applicable. 1. Those in which the stricture is so unyielding that no dilatation, simple or continuous, materially enlarges the passage or ameliorates the symptoms; such examples usually occurring in patients who have been subject to the complaint for twenty years or more, and who have undergone repeated and long-continued courses of treatment. 2. There is a class of cases for some of which, severe and obstinate stricture having occurred in comparatively early life, internal division appeared to be the most appropriate treatment. For these, the object of the operation is not only to remedy present difficulties (as in the preceding class), but also to anticipate future ones, since

it is almost absolutely certain that serious, if not fatal injury, will result long before the term of life is past, where during the early part of it a severe stricture is established, and merely palliative treatment is applied. He believes it to be a question which we are bound seriously to consider, whether it may not be more desirable to cure the patient, if possible, before extensive urethral disease has been set up, or organic complaints in the bladder or kidneys have been established, than to postpone the attempt until such changes either threaten or have taken place, and the effect of palliative measures has been well-nigh exhausted. This is a view of the subject which, in the author's opinion, has not been sufficiently considered. The manner of performing internal division of the stricture was next described. During the last few years Mr. Thompson has studied the modes generally adopted both at home and abroad, especially the latter, and had made it his business personally to examine and estimate them: the consequence of which was that he had employed the method about to be considered, and with a success which gave him a high opinion of its utility. For the successful practice of the operation, the three following conditions must be complied with:—1. The cutting instrument must be passed through the stricture, and the incision be made from behind forwards, that is, towards the orifice of the urethra, not from before backwards. 2. The limits of the stricture being first accurately defined, the whole of the contracted part should be divided. 3. The borders of the incision should be maintained apart by catheterism subsequently performed, and healing of the incision by first intention be thus prevented. After dwelling on each of these points at some little length, Mr. Thompson invites particular attention to an important point in connection with the kind of stricture to which incisions are applicable. He is anxious to combat a very generally received opinion, that the narrowness of a stricture is the measure of its severity, an opinion which is wholly erroneous, and productive of grave error in practice. The truth is that a very narrow stricture, for example, one admitting only an instrument of the size of No. 1, sometimes produces comparatively slight symptoms, and is easily amenable to dilatation, while there are exceptional cases in which a stricture is by no means narrow, admitting say No. 4 or 5, but which is quite non-dilatable, and is accompanied by most severe symptoms. Narrowness, *per se*, is not therefore the gauge of severity. The most important characters of organic stricture, whatever may be its calibre, are non-dilatability and contractility; the former denoting a condition in which the tissue constituting the stricture is so unyielding that dilatation, however carefully employed, does but slightly enlarge its calibre, or improve the symptoms; the latter denoting a quality, through the agency of which, whatever temporary effect may be produced by dilatation, the original degree of narrowing reappears almost immediately after ceasing to employ the instrument. The erroneous belief referred to is exemplified in the remark so frequently met with, that if a No. 4 or 5 can be passed, any incision must be unnecessary. The fact, however, is that not merely the calibre, but many other conditions of the stricture, and also system at large, must be considered before it is possible to come to a conclusion respecting the kind of treatment which should be adopted. These points are discussed in detail by the author. There was one important fact in relation to non-dilatability, viz., that this particular quality of the stricture appears generally to be developed in proportion to its proximity to the external meatus; so that those cases for which incision is most indicated, are precisely those in which the incision is rarely accompanied by any risk whatever. The instrument which Mr. Thompson considers to supply the best method of fulfilling all the indications required in the majority of cases, is the urethrotome employed by Civiale for fifteen years past, and now slightly modified from the original pattern. The mode of employing it is minutely detailed, and the after treatment described. For cases in which the stricture is too narrow to be treated by this instrument, Mr. Thompson employs a simple urethrotome of his own design. The accidents which might happen after internal incisions were then discussed and considered from the facts presented in the careful observation of forty-two cases treated by the especial form of urethrotomy described. These accidents were proved to be

slight, and in no single instance had led to a fatal, or even threatened a dangerous result. The important fact, says the author, is this, that in most cases it is in our power by internal urethrotomy to replace a confirmed non-dilatable stricture by a condition of the urethra, in which the occasional use of an instrument maintains the normal calibre. In this manner we may confer upon the patient a benefit of no ordinary value, not only in relation to the removal of present symptoms (which may be accomplished equally by other methods), but in the prevention of those more serious evils, which will certainly arise in the course of advancing age. It is this which has long been an important desideratum in practice; unhappily it has been the custom to regard too much the present results, and too little the future difficulties in our treatment. Most triumphant is dilatation in regard to the present in the great majority of cases, but in a certain proportion of them it does but postpone the evil day. He claims for internal urethrotomy, when properly applied to appropriate cases, the position of an admirable adjunct or supplement to dilatation. It is on no account to be regarded as a treatment antagonistic to or competitive with dilatation, but as often rendering wholly amenable to that process a stricture which had been completely rebellious to it before. Finally, Mr. Thompson presents the details of eight cases, which he had taken from his own practice as illustrations, each one of which had been treated by him either in the public wards of University College Hospital, or in connection with some medical man, whose name was given as corroborative of the statements made. The results are of the most satisfactory nature.

ART. 123.—*On the treatment of organic strictures of the Urethra by Iodide of Potassium.* By Dr. THIELMANN.

(*Med. Zeitung hussland, and Journ. Prac. Med. and Surg.* June 16, 1880.)

Dr. Thielmann, surgeon of one of the hospitals of St. Petersburg, has utterly relinquished, the last thirteen years, the use of the mechanical means habitually employed for organic strictures of the urethra, which he treats exclusively by iodide of potassium. This medication has perfectly succeeded in twenty-seven cases of stricture presenting a great diversity with respect to seat, extent, structure, &c. With the greater part of the patients a more or less copious gonorrhoeal discharge was present at the same time. The oldest strictures were of two years' standing, the most recent of eight months. With a great number of subjects bougies Nos. 2, 3, and 4 could be introduced without much difficulty; with two individuals a Bougie No. 1 could not penetrate in consequence of the tortuous direction of the passage. The stricture had already induced a dilatation of the membranous portion of the urethra situated behind the obstacle. The seat of the strictures treated by Dr. Thielmann was sometimes the spongy portion of the urethra in the vicinity of the bulbous portion, at other times, this latter portion itself. They occupied in three cases the membranous portion; in none the fossa navicularis. On exploration, when such was possible, the strictures generally presented themselves in an annular or semi-annular form. In some patients they seemed to be composed of irregular scars, of variable shape, which could be felt by the surgeon touching externally the course of the urethra. They had all, without exception, a callous consistency.

Mr. Thielmann exhibited to each of his patients three tablespoonfuls a day of the following solution:

R Potassii Iodidii	. 2 dr.
Aq. destillatæ	. 5½ oz.

He prescribed a rigid milk diet, permitting amylaceous food. When any iodine-symptom manifested itself, he diminished the dose until the patient could bear a stronger one. Iodide of potassium regularly produced the effect of determining a gonorrhoeal discharge, if it did not previously exist, or of increasing it, if it was already present. As the discharge took place, a softening, a melting, as it were, was effected in the nodular tissue, which constituted the stricture, and the stream of urine returned by degrees to its normal dimensions. The duration of the treatment varied from a fortnight to two months, accord-

ing to the degree of the coarctation. It was sometimes requisite momentarily to suspend the use of the iodide of potassium, in order to avoid the accidents that might be superinduced by its protracted use. When the nodular tissue of the strictures was felt externally, Mr. Thielmann ordered, in addition to the external use of iodide of potassium, frictions along the part of the penis corresponding to the urethra with an ointment composed of—

R Potassio Iodid. . . 1 dr.
Aloë . . . 1 oz.

The gonorrhoeal discharge for the most part ceased spontaneously. When it was persistent it was treated by the ordinary means.

ART. 124.—*New mode of relieving retention of Urine.*

By Mr. PARKER, Surgeon to the Queen's Hospital, Birmingham.

(*British Med. Journal*, May 2, 1853.)

"Within the last few days," says Mr. Parker, "I have succeeded in two separate instances, in relieving the retention of urine in the following manner: A gentleman lately entered my consultation room in great pain from retention of urine. He had not passed water for many hours; the bladder was much distended. He stated that ineffectual efforts had been made to pass a catheter, during which operations he had lost a considerable quantity of blood. I attempted to relieve him by the catheter, but failed to do so; I tried instruments of various sizes and various curves, but could not succeed in passing one into the bladder. I then took a No. 2 wax bougie, and inserted a small portion of potassa fusa into the end of it, after the manner proposed by Mr. Whateley, and practised by Mr. Wade in the treatment of permanent stricture of the urethra. I well moulded the wax over all but the extreme point of the caustic, and passed it rapidly down to the point of obstruction: by pressing against this for a short time it yielded, and I had the satisfaction of finding the bougie easily enter the bladder. I directed the patient to strain as I withdrew the instrument: a stream of urine followed, and the bladder was emptied. The retention did not again occur, and very little irritation accompanied or followed the proceeding. On the next day the patient made water freely, but in a small stream.

The second case was very similar. The patient had traveled some distance by rail. The bladder was much distended, the symptoms urgent, and a catheter could not be made to enter the bladder. A small wax bougie was armed as in the last case, passed down to the stricture, and firmly pressed against it. It yielded very shortly; the instrument entered the bladder, and a stream of urine followed its withdrawal. This patient had a second attack of retention two days afterwards, which was relieved in the same manner.

"A modification of this plan might be attempted by inserting a small piece of potassa fusa into the extreme point of a small gum-elastic catheter, and using it without the stilette. I am sanguine enough to hope that many cases of retention might be easily and quickly relieved by the simple means I have suggested, and more formidable and dangerous operations thus frequently avoided.

ART. 125.—*Extract of Belladonna in the treatment of Irritable Bladder.*

By Mr. HENRY BEHREND.

(*Lancet*, June 20, 1850.)

CASE.—The patient was a married lady, without family, about thirty years of age. Some five or six years ago she had suffered from acute dyspepsia, but shower-baths and horse exercise had completely cured her, and she had enjoyed uninterrupted good health until about two years ago, when she was suddenly, and without any assignable cause, attacked by the complaint for which she consulted me in August, 1856. Previously to its commencement, which was in May, 1857, she had always slept remarkably well, and had seldom or never been disturbed during the night; but during the last fifteen months, the

irritability of the bladder had been so great as to render the immediate evacuation of its contents imperative at least three or four times during the night, and often as frequently as seven or eight times, or even more. During the day, there was little or no irritability, and the quantity of urine passed was normal, or nearly so; but in the course of the night, two or three times the natural amount was passed, pale, insipid, and, when tested, free from sugar, albumen, or other abnormal constituents. The combined effects of the loss of rest and the drain of fluid from the system had materially affected her general health. She had lost flesh, and suffered much from thirst, headache, and nausea, especially upon rising in the morning. She was much depressed in spirits, and took a desponding view as to the ultimate result of the malady. I prescribed successively the tincture of the sesquichloride of iron, comp. and tincture of valerian, tincture of hyoscyamus, liquor potassæ, dilute mineral acids, sea-bathing, and change of air and scene, without the least amelioration of the symptoms; and upon her return to town at the commencement of October, I decided upon giving the extract of belladonna a trial. She began taking it in doses of the twelfth of a grain three times a day, in the form of a pill, and was at this period always disturbed four or five times in the course of the night, and often much more frequently. The belladonna was at once increased to the third of a grain three times a day, or a grain in all, as soon as I found that its use was not forbidden by any peculiarity of constitution. These doses were continued for about six weeks (with the occasional intermission of a day or two), at the expiration of which period its toxic effects began to manifest themselves; for though the pupils were not dilated, yet vision was not normal: black spectra appeared: the mouth and fauces were parched and dry, and there was occasional nausea. Already the improvement in the symptoms was decided; my patient slept better, and was never disturbed more than three times in the night.

As it is a recognized fact, that in order to obtain the full amount of benefit from the belladonna, it must be pushed until its specific symptoms are quite established, I now increased the daily amount to a grain and a half, in the proportions of half a grain in the morning, and one grain at nine p.m. In the course of three or four days, the pupils became dilated, the nausea extreme, and there were repeated efforts to vomit, for the most part ineffectual, but occasionally followed by a little glairy mucus. The irritability of the bladder became almost entirely subdued; she was disturbed once only, or at most twice, throughout the night, and the quantity of urine passed was normal, or only occasionally slightly increased. The belladonna was at once discontinued, the general health rapidly improved, and during the past six months the cure has been permanent, and my patient has continued perfectly free from any recurrence of her distressing complaint, except that a slight tendency to irritability of the bladder manifests itself now and then, for one or at most two nights in succession, but passes away of itself, and is not of sufficient consequence to require any treatment.

ART. 126.—*On the employment of Electricity in the treatment of Paralysis of the Bladder and certain Vesical Catarrhs.* By M. PETREQUIN.

(Comptes rendus, May 30, 1859.)

After referring to the frequency of paralytic and catarrhal affection of the bladder in old persons, and to the inefficiency of the means in ordinary use, M. Petrequin lauds in very high terms the efficiency of electricity—especially the interrupted current from the ordinary induction coil. In applying the current, one of the poles (in this case a properly contrived catheter) is carried into the bladder, and the other pole is placed either in the rectum or upon the centre of the hypogastrium; and care is to be taken that the shocks be so regulated as to cause no feeling of distress at the time or subsequently. The rule is to have a feeble current, to apply it only for a short time, and to repeat the operation frequently. M. Petrequin does not cite any cases in which he has put this plan of treatment in practice.

ART. 127.—*Treatment of Impotence by Electricity.*

By Dr. N. ALTHAUS.

(Deutsche Klinik, No. 6, 1850)

CASE.—A man, æt. 45, well built, the father of several healthy children, had suffered for twelve months from a complete absence of the power of virile erection. After a careful examination, Dr. Althaus satisfied himself that the cause of this infirmity was paralysis of the ischio-cavernosus and bulbocavernosus muscles, and he resolved to try the effects of electricity. Placing the patient in the position for lithotomy, and raising the penis and scrotum towards the abdomen, he passed slight shocks from an inductive apparatus through these muscles; and then, finding that these shocks produced no feelings of distress or inconvenience, he increased the strength of the current. Two days afterwards there was a decided erection. After the second application of the electricity, which was for ten minutes, the patient succeeded *en coit*. Two other applications of electricity were necessary, in consequence of a relapse, and then the cure was complete.

ART. 128.—*On Lithotomy.*

By Mr. SKEY, Surgeon to St. Bartholomew's Hospital.

(Lancet, July 20, 1850)

The following general rules are from a clinical lecture recently delivered:

"Believing as I do," says Mr. Skey, "that the operation by means of the lithotrite is applicable to the large majority of calculous affections of the bladder—that, if well executed, it is safer as regards the life of the patient, quite as certain as regards entire recovery, and less exhausting to the system, I recommend its practice for your consideration.

"I advise your rejection of cases for lithotomy presenting the following characters:

"1. Manifest disease of the kidney.

"2. The urethra so constricted as not to admit with facility a lithotrite of ample size.

"3. The bladder so intolerant as to be incapable of retaining its urinous contents for three or four hours; and, on the other hand, a bladder of low nervous susceptibility.

"4. Much enlargement of the prostate gland.

"The quantity of water injected should not exceed four or five ounces. In many subjects, the employment of chloroform excites the bladder to contract, and the injection has to be repeated. The lithotrite, from its full size and angular form, should be introduced with more caution than is usually required on the introduction of a catheter. No attempt should be made to open the instrument in the bladder until it has been pushed thoroughly home into the organ. In the act of separating the blades, do not withdraw the upper, without at the same moment pressing the lower blade downwards towards the bottom of the bladder. If this rule be not strictly observed, the upper blade will be painfully pressed against the neck of the bladder, from which hæmorrhage may follow. The stone is to be brought into the lithotrite by pressing the lower blade suddenly, and by a slight jerk or twist of the hand, against the base or bottom of the bladder. There is neither necessity nor advantage in directing the instrument to the right or to the left. It should retain the mesial line throughout the entire operation. When the stone is caught, the blades should be screwed 'home,' lest small accumulations become large, and render the withdrawal of the instrument through the urethra difficult. At the first operation, do as little as possible. It may be deemed an experimental occasion, and it will be sufficient to break the stone once across. On all future occasions, the number of applications of the screw may be determined by the tolerance of the patient. The stone may be broken six, eight, or more times. The intervals between each other operation will vary according to the condition of the bladder, and the quantity of detritus expelled. If the quantity be

considerable and the bladder quiet, the operation may be repeated in four or five days. The average interval is longer than this. Few cases pass through their course of treatment without giving evidence of irritability of the mucous membrane of the bladder, manifested by a discharge of tenacious mucus adhering to the bottom of the vessel. Unless in its aggravated form, it is not a serious symptom. It may be treated with disman, or ura uris, nitric acid, Dover's powder, &c.; but the best remedy is lithotrite. I have repeatedly seen this symptom subside on the repetition of the operation. The constitutional treatment is chiefly dietetic. Diluents should be ordered largely; and the moderate use of wine is unobjectionable. I have never seen any advantage obtained by an abstinent diet, nor any evil arise from an ordinary and habitual one. It is surprising how large a fragment may travel along a healthy urethra. They are arrested, however, most frequently at the glands, and if a fragment cannot be extracted by a pair of fine forceps in this situation, the urethra should be divided. When fixed low down in the urethra, they should be pushed back into the bladder. This may be effected by a large catheter (No. 12), cut off straight at the point, the extremity of the instrument being supplied by a moveable knob, which is withdrawn when the catheter touches the stone. The open extremity of the instrument encircles the stone, which is forced backwards without injury to the mucous membrane. A small abscess in the perineum may occasionally follow the violent employment of the lithotrite, or forceps, &c. It presents itself under the form of a small rounded tumor. It seldom requires active treatment, and, as a general rule, may be let alone."

ART. 129.—*Comparison between Lithotomy and Lithotripsy in London and in the Provinces (males only).* By Mr. ———.

(*Medical Times and Gazette*, Aug 25, 1859.)

The relative proportion of cases treated by lithotomy and lithotripsy respectively appears to be about the same in our London and provincial institutions. The same rules of selection appear also, with some exceptions, to prevail in both, as well as in individual hospitals. Lithotripsy is, as a rule, never performed in children; and the circumstance of the patient being in unusually bad health is regarded as a reason for performing lithotomy. In one or two instances, however, the reports supplied to us state that the stone was crushed because the man was thought too ill to bear the larger operation; but these are very exceptional. The selection of the one or other operation for adults in good health, appears, however, to have been very arbitrary, and has, we believe, in many instances, been decided by the patient's own preference. It does not appear, judging from the data before us, and from what we know privately, that any of our hospital surgeons make it an invariable rule of practice to employ the lithotrite in all cases of stone in adults of fair general and local health.

The appended statement gives the aggregate results of the two modes of operating:

Metropolitan.

Whole number 207; recovered 157; died 47; 1 death in 4.4					
Lithotomy	186	"	146	"	40
Lithotripsy	21	"	11	"	7

Provincial.

Whole number 238; recovered 207; died 29; 1 death in 8					
Lithotomy	222	"	195	"	27
Lithotripsy	16	"	12	"	2

Thus, then, we have the fact brought clearly out that of every four cases of stone in males (all ages) submitted to surgical treatment in the London hospitals, one ends fatally, while in the provincial institutions the fatality is only one in eight. Before attempting to ascertain the probable causes of this startling difference, two questions present themselves for answer. In the first place,

are the two series of cases sufficiently alike to be properly made the subjects of comparison? And, in the second place, are the data of which they consist equally trustworthy in both? The first of these we would answer, without hesitation, in the affirmative: the two series of cases do bear a very close similarity to each other, i.e. in each the relative proportions of patients at different ages closely correspond, while nearly the same rules appear to have influenced the minds of the different operators as to the performance of lithotomy or lithotripsy. In the latter point, indeed, the advantage is rather on the side of the metropolitan series, since it includes a larger proportion of lithotripsy cases, which, as we shall hereafter see, is the less fatal operation in the adult. In replying, or attempting to do so, to the second question, we tread on different, and very difficult ground. It must, we think, be granted that the accuracy of the two series is not equally well guaranteed. Both in London and in provincial hospitals, our statistical reports have been, in the first instance, compiled from data supplied to us by the resident medical officers of the respective institutions. Thus far, therefore, the modes of procedure, and the probability that all cases would be recorded, are the same in each. In London, however, the writer of this report was engaged in daily attendance on the practice of the different hospitals, and was in the frequent habit of looking through the "operation books" himself. Without making the slightest reflection on the integrity of those to whose zeal we are indebted for the provincial data, the simple statement that the additional security of completeness just mentioned was in the case of their institutions not brought to bear, will be sufficient to prove that the facts in the two series are worthy of different degrees of reliance. We may venture to strengthen the proof by stating that in certain instances cases did find their way into our London list of deaths, through our own personal supervision, which would not otherwise have done so. We shall here leave this matter, and our readers must form their own conclusions as to the allowance which ought to be made on the ground referred to.

Whatever allowance individual readers may incline to make on the score above mentioned, none can entertain a doubt that our statistics really prove that a great difference in result does obtain in our provincial and our metropolitan hospitals. The apparent difference is so great, that it is impossible but that a considerable part of it must be real. It will be seen also that it is almost equal, whether we examine the lithotripsy series or the lithotomy one. To what, then, are we to attribute it? We may fairly presume that the amount of surgical skill to be met with in the two series of hospitals is equal, and we believe that the same rules of practice prevail in each, i.e., the ordinary lateral operation was performed in almost all the cases. We have already observed that the ages of the patients very closely correspond. Two circumstances remain for consideration as possible causes of the difference. 1st. The provincial hospitals may possess great sanitary advantages over our London ones. 2d. The class of patients admitted under provincial surgeons may possess far better constitutions, as regards ability to bear severe operations, than do those who enter our London hospitals. Probably both these suppositions are true to a certain extent, but the latter has, we suspect, vastly the wider range of influence. Let us glance at the following facts: Out of 109 children under the age of ten lithotomized in the London hospitals only 8 died, and exactly the same number was lost of 113 patients of the same age operated on in the provincial ones. Here the London fatality is 1 in 13.5, and the provincial 1 in 14; in fact, the results scarcely differ, whilst the whole number is quite sufficient to supply data for fair comparison. Now, if the sanitary advantages of the two series of hospitals were very different, ought not the effect to be at least equally apparent in the case of young children as it is in that of adults? As we leave the age of infancy, the difference, however, becomes marked, and it increases almost steadily with each decade. Between 10 and 25 the London fatality is 1 in 5, and the provincial 1 in 9. Between 25 and 45 the London deaths are exactly in twice the proportion of the provincial ones. Between 45 and 60 the difference is much greater, London losing one half and the provinces only 1 in 5. In the oldest class of patients, that is, those between 60 and 80,

the metropolitan mortality reaches its alarming maximum of three fourths of the whole number, whilst in provincial institutions it is only one third. Do not these facts prove to a demonstration that there is a very great difference in the power of recovery after lithotomy, between our London and provincial patients? The adult subjects of lithotomy in London are of two classes, those who have resided in the metropolis, and those who have been sent up from the country expressly for the purpose of operation. Probably the former of these two classes would include two-thirds, and the latter one third of the whole, but in this matter we have no ascertained data to guide our conjecture. We need not enlarge on the bad state of constitutional stamina in London adults of the poorer class, since it is sufficiently known. Intemperance, irregularities of all kinds, and city life do their work, and their effects usually become increasingly apparent as age advances. On the second class—that comprising cases sent up for operation from the country—we will venture one or two remarks. As a rule, we do not believe that our provincial *confrères* select their best cases to send to our London hospitals. At any rate, of this we are sure, that some of the very worst in the whole series were patients who had been so sent up for operation. Not unfrequently there is a history that lithotomy has been repeatedly tried, but that the bladder becoming more and more irritable and the patient's health failing, the case has been sent up to town for further measures. Then again, even supposing that our patients from the country were of average health, it is easy to see that their transference to the wards of a London hospital is likely to exert anything but a favorable influence. To a naturalized Londoner a London hospital is a sort of palace, but its effects are very different upon a farm laborer who has been accustomed to the air of the Kent downs.

Taking the London cases by themselves, we find that between the ages above mentioned, rather more than half (26 out of 49) die after lithotomy, while only a third (7 out of 21) die after lithotrity. It must be remembered, however, that three cases treated by lithotrity remained unrelieved, and while in more than one instance the same patient was treated for a relapse of symptoms a year or two afterwards, his case is counted twice.

Taking the provincial cases by themselves, we find that between the ages mentioned not quite one-fourth die after lithotomy (18 in 74), while the lithotrity mortality rate is only one in seven and a half (2 in 15). Two of the lithotrity patients were, however, after long treatment, finally submitted to lithotomy, and the remark made above as to the unavoidable multiplication of cases by counting the same twice, applies, we believe, with equal force to the provincial as to the London series.

Allowing, then, that to a certain extent the best cases are selected for lithotrity, we cannot say that the results obtained are very triumphantly in favor of that operation. Still the balance of evidence, especially in patients past middle life, is certainly, and beyond dispute, to its advantage.

ART. 130.—*Statistical Analysis of 177 Lithotomy operations in provincial Hospitals.* By Mr. ———.

(*Medical Times and Gazette*, July 2, 1859.)

The period included in the following account is from October, 1853, to December, 1858, or four years and a quarter. The hospitals furnishing the data are: the Royal Berkshire (Reading), the Bradford, the Bristol General, the Canterbury, the Cheltenham General, the Cumberland (Carlisle), the Derby General, the Devon and Exeter, the Dorset County (Dorchester), the Dundee Royal Infirmary, the Durham, the Glasgow Royal, the Gloucester, the Huddersfield, the Hull, the Leeds, the Leicester General, the Liverpool Southern and Toxteth, the Liverpool Royal, the Newcastle-upon-Tyne, the Nottingham, the Queen's (Birmingham), the Sheffield General, the South Staffordshire, Wolverhampton, the Staffordshire General (Stafford), the West Norfolk and Lynn (Lynn), the Winchester, York County.

The London list comprised a gross total of 186 cases, with 40 deaths; while the Provincial will show 175, with 22 deaths.

Before proceeding further, however, a few words of explanation are due to the reader as to the mode in which the facts to be analyzed have been collected, and the degree of confidence which they claim. The data upon which our Quarterly Statistical Reports were founded, were furnished to us by the resident medical officers of the different institutions. The care and accuracy with which, in almost all instances, these statements have evidently been drawn up, enables us to rely confidently on their general correctness. It would, however, happen sometimes that, owing to a change of house surgeon or other accidental cause, the list of operations from one or other hospital might for a certain quarter not be obtainable. Several of the hospitals which, during the first part of period mentioned, furnished us with their operations, ceased to do so after a time, and were unavoidably on our part omitted from our list. These circumstances certainly go to some extent to diminish the value of the following summary. Still we have no reason whatever to doubt but that in each instance the whole of the operations performed in any single hospital during the time that it professed to furnish us with them were duly supplied, and without selection or omission. The periods referred to as having in some instances been omitted, did not probably differ in their rate of mortality from those which were included; at any rate, they were omitted for reasons wholly without regard to any such difference, if it existed. We believe therefore, that although they may not be strictly and unexceptionably accurate, that the statements which follow will supply a very close approximation to the real statistics of provincial operative surgery. At any rate, they will give the reader a far better idea of what that surgery is, what its success, and what its fatality, than any other method within our reach. Before entering upon its examination, it now only remains for us to tender our best thanks, and those of the profession at large, to the many gentlemen who, without any selfish object, and in the pure love of science, have, at the cost of so much labor to themselves, put it in our power to obtain such valuable deductions.

INFLUENCE OF THE PATIENT'S AGE ON HIS PROSPECT OF RECOVERY.

Age.	No.	Recovered.	Died.	Per cent- age of Deaths.	
1	1	1	0	-00	No death
2	9	8	1	11.10	1 death in 9
3	12	11	1	8.30	1 in 12
4	18	15	3	16.66	1 in 6
5 to 8	40	40	0	.00	All recovered
8 to 10	14	13	1	7.1	1 in 14
10 to 15	21	20	1	4.7	1 in 21
15 to 20	6	5	1	16.6	1 in 6
20 to 25	8	6	2	25.0	1 in 4
25 to 30	3	2	1	33.3	1 in 3
30 to 35	4	3	1	25.0	1 in 4
35 to 40	5	4	1	20.0	1 in 5
40 to 45	4	2	2	50.0	1 in 2
45 to 50	3	2	1	33.3	1 in 3
50 to 55	3	2	1	33.3	1 in 3
55 to 60	9	7	2	22.2	1 in 4½
60 to 65	8	7	1	12.5	1 in 8
65 to 70	6	4	2	33.3	1 in 3
70 to 75	1	1	0	-00	No death
75 to 80	2	2	0	-00	No death
Totals.	177	155	22	12.3	

Under 10 { 6 deaths in 94
years of cases, or 1 in
age. every 16.

Between 10 and 25 { 4 in 35, or ra-
ther more than
1 in every 9.

Between 25 and 45 { 5 in 16, or not
quite 1 in eve-
ry 3.

Between 45 and 60 { 4 in 15, or ra-
ther more than
1 in every 4.

Between 60 and 80 { 3 in 17, or ra-
ther more than
1 in every 6.

Thus it would appear that in the practice of our provincial hospitals the period of life in which the lowest death-rate after lithotomy prevails is between the ages of 5 and 10. Of 55 operations performed on patients between these ages, all but one resulted in recovery. Children under the age of 5 do not appear to bear the operation so well as those a little older, since out of 41 operations we have 5 deaths. In the periods between the age of 10 years and puberty, and from the latter to 25, the mortality is much larger than in childhood, and it rises still higher during the twenty years next following, to decline, however, with further advancing age. The table before us differs from most other statistical statements on this subject, in showing a diminished ratio of death in the aged as compared with those in the middle period of life. The oldest three patients all recovered; and while out of 16 operations performed on patients between the ages of 25 and 45, 5 ended in death, or nearly 1 in 3; out of 17, in which the subjects were between 60 and 80, the proportion was only 1 in 6. We shall, at some future time, show how remarkably this differs from what is found to be the case in London practice, and to offer some conjectures as to its explanation. In the mean time we will only remark, that lithotomy is practised with at least proportionate frequency in the provinces, and that it therefore is not the disturbing influence.

CAUSES OF DEATH.

We regret that we do not possess such detailed information on this head as was the case with the London operations, and that respecting several we have only been informed of the bare fact that death occurred. Under the head of "Cause of Death not Known," we shall therefore be compelled to include 4 out of the 22 cases. We have endeavored to classify the remaining 18 in the subjoined list according to the accident or lesion to which the fatal event appeared to be mainly attributable. In many, perhaps in most, more than one had been coincidently in action. Thus, in not a few in which the immediate cause of death was pyæmia or abscesses about the bladder, hæmorrhage, which occurred at the time of the operation, appeared to have exerted an influence predisposing the patient to such lesions. The classification is, therefore, only an approximation to the truth, and must be so considered by our readers:

Peritonitis	in 6 instances.
Abscesses about the bladder	" 4 "
Hæmorrhage	" 3 "
Pyæmia	" 2 "
Shock of the operation	" 2 "
Renal disease	" 2 "
Extravasation of urine	" 2 "
Exhaustion	" 2 "
Broncho-pneumonia	" 1 "

In this list several of the cases are counted under more than one head on account of several of the lesions mentioned having been combined.

ART. 131.—*Lithotomy and the removal of the Fragments at the time.*

By Mr. FERGUSON, Surgeon to King's College Hospital.

(*Medical Times and Gazette*, Jan 25, 1859.)

"In a case recently under treatment in King's College Hospital," writes one of the clerks, "Mr. Ferguson is employing what he terms a 'favorite method' of his for the expediting of the cure. It consists in the removal by means of the lithotrite of as many fragments of the stone as can be got away. The patient in the present instance is a man of about sixty, with a large urethra and fairly healthy bladder. He has been under treatment several weeks, and the opinion formed in the first instance was that more than one stone was present. On Saturday last a third crushing was performed. The man having been put under the full influence of chloroform, the stone was broken by a large and strong instrument. A much lighter lithotrite was then introduced.

and a fragment having been seized, the size of which was evidently moderate, it was dragged out. This manœuvre was repeated ten or fifteen times, and enough was removed to have made up a stone of moderate bulk. It did not, however, appear that all had been got away, as the fragments could not be made to fit so as to make up one stone, and the original opinion as to there being more than one seemed strengthened. In several instances considerable difficulty was encountered in getting the fragment seized out at the *maetus*, although it had slipped quite easily through the deeper tracts of the urethra. Occasionally it would escape from the grasp of the instrument, and remain impacted about half an inch from the orifice. When this happened, Mr. Fergusson employed a small scoop or a pair of common dressing forceps to effect the final removal. Of course some bleeding attended the forcible dragging of the fragments out: it appeared, however, to come almost wholly from near the *maetus*. On the plate, after the operation was completed, we counted six fragments, all of them of too large a size to have been voided spontaneously, and there were at least twenty others of smaller dimensions. There can, therefore, be no doubt that this plan of forcible extraction, *per urethram*, if safe, very greatly expedites the cure. Mr. Fergusson's dexterity in the use of the lithotrite may, it must be borne in mind, make that safe in his hands which would be otherwise in those of less experienced surgeons. Thus, although the instrument had, on the occasion alluded to, been introduced and withdrawn at least fifteen times during the sitting, yet the whole had not lasted more than about twenty minutes. The instrument seemed as if spontaneously, at each introduction, to seize a fragment of right size for extraction the moment it entered the bladder.

Mr. Fergusson, in some clinical remarks at the conclusion of the operation, admitted that the plan he had adopted was one as yet on its trial. His own belief was, however, strong, that when judiciously carried out, it very materially hastened the patient's recovery, without adding to his risks. With regard to the degree of force which might be used, he said that his rule was never to employ violence if the stone stuck in the lower part of the urethra. By the lithotrite the size of the fragment might be estimated with a certain degree of accuracy, and if too large it should be crushed instead of being extracted. If, however, no difficulty occurred until reaching the anterior inch, he believed that forcible extraction through that part did no injury whatever. Some might incline to adopt the plan of the older lithotritists, and slit up the *maetus* before beginning; but he thought it unnecessary. He directed attention to the smallness of the instrument which he had used; and stated that though much too weak for crushing large stones, it did very well for the extraction of fragments."

ART. 132.—*Sequel to a case of Urinary Calculus, with vesico-intestinal Fistula.*
By Mr. CHARLES HAWKINS.

(*Proc. of the R. Med. and Chir. Soc. June 28, 1859.*)

CASE.—The patient, whose case is related in a previous volume ('abstract,' XXIII, p. 249), died on April 19th, 1859, a year after the operation. On a p. m. examination, no stone was discovered in the bladder. The kidneys were somewhat congested, but in other respects healthy in appearance. There was an opening in the bladder at the lower part of the posterior wall of the diameter of a goose-quill, evidently not of recent date. The bladder, corresponding to this aperture, was intimately united by old adhesions to that part of the circumference of the sigmoid flexure of the colon that lies nearest it.

The aperture in the bladder communicated with the sigmoid flexure opposite their point of union. Above the point of communication of these two viscera, for the extent of about an inch, the canal of the sigmoid flexure was somewhat constricted; but the constriction was apparently due to the adhesion and subsequent contraction of these viscera, as beyond the point where the adhesion between them existed the calibre of the sigmoid flexure appeared normal. Below the orifice of communication between the bladder and colon, the canal of the intestine was greatly constricted to the extent of an inch and a half in

length; this stricture appeared to depend upon great condensation and subsequent cicatrization of the submucous and muscular tissues of the bowel at that point. The mucous membrane of the intestine above the seat of stricture presented in many places pouches, varying in size from a pea to a filbert, and formed by the protrusion of this coat externally. Opposite to this stricture, it appeared to be in every respect quite healthy, but very densely convoluted.

Below the seat of stricture the bowel was considerably dilated, and had, during life, apparently noted the part of a second bladder, as from the symptoms described by the patient, the urine used to accumulate there in considerable quantities, being passed per anum.

ART. 133.—*Large Calculus removed from the Urethra of a boy on whom Lithotomy had been performed five years previously.*—By CHRISTOPHER HEATH, Esq., Demonstrator of Anatomy in the Westminster Hospital.

(*Lancet*, Aug. 27, 1859.)

JOHN H.—, *ret.* 14, was sent to me by Dr. Grigor, of H.M.S. *Queen Charlotte*, having been refused admission into the navy on account of a tumor in the perinaeum, which rendered him unfit for service. The tumor was quite hard, of about the size of a walnut, and projected at the back of the scrotum, in the median line, but was capable of being moved slightly from side to side. It was apparently a calculus impacted in the urethra, and the diagnosis was confirmed by passing a catheter, which impinged upon the stone. There was a constant mucous discharge from the urethra, and the stream of urine, although of considerable size, was twisted. The boy said that it had existed eight years (subsequently found to be an error), and gave him little inconvenience except somewhat sharp pain occasionally after passing urine. He was anxious, however, to get rid of it in order to go to sea.

The stone being evidently too large to admit of extraction per urethram, I resolved to remove it by incision, and accordingly, on June 24th last the boy being under the influence of chloroform, and in the lithotomy position I steadied the stone with the left hand, and cut upon it in the median line. The incision was about two inches long, and encroached on the back of the scrotum for about half that length. The wall of the urethra was found to be very much thinned, and was laid open (in the bulbous portion) to the extent of about an inch and a half, when the stone was easily removed with the finger. One small artery required ligature, and a sound passed into the bladder detected no other stone. The calculus was of remarkable shape, closely resembling the head and beak of a bird. It measured rather more than two inches in length, and not quite an inch and a quarter across at its broadest part, and was placed with the large end farthest from the bladder, and its upper surface flattened against the corpora cavernosa, by which it was distinctly marked. It weighed when extracted above seven drachms, but when thoroughly dried exactly five drachms and a half.

The boy made a perfectly good recovery, but the wound was rather long in healing, probably owing to the size to which the urethra had been dilated. A day or two after the operation there was swelling of one of the testes, with a little inflammation about the scrotum, but this soon subsided. No catheter was introduced after the operation, but about three weeks after, the urine not coming so fully by the urethra as I wished, a No. 5 elastic was introduced, and retained for a few days. The boy was finally discharged on the 11th August, with the wound healed, and very little thickening remaining, and able to pass a good stream of urine.

Having learnt from the patient that some years ago he was in King's College Hospital, I searched the register of that institution, and found that he was admitted, under Mr. Partridge's care, in January, 1854, with stone in the bladder, the symptoms of which had existed three years. Mr. Partridge performed the usual lateral operation of lithotomy (the scar of which can still be seen) on the 3d of February, 1854, and extracted one stone. The boy made a good recovery, and was discharged on March 10th.

This case is unusual, both from the shape and size of the stone, and from the fact that the patient had previously undergone lithotomy. The only parallel case I have been able to find is one related by Mr. John Ward, of Bédouin, at the North London Medical Society (THE LANCET, Nov. 4th, 1854), in which he removed a calculus "from the cellular tissue of the scrotum" of a man who had been lithotomized three years previously.

On section, the calculus appeared to be composed of phosphates, with a few streaks of uric acid (as, for instance, in the dark portion near the apex), and it would appear probable that when of small size it had passed through the neck of the bladder, dilated by the previous operation, and become fixed in the bulbous portion of the urethra, the original nucleus being quite at the anterior part of the section of the stone, and its bulk formed by deposit reaching backwards towards the bladder. It is remarkable that the boy should have suffered so little inconvenience, and been able to pass so good a stream of urine, with the urethra so completely blocked up.

ART. 134.—*Treatment of Hydrocele by Electricity.*

By (1) Dr. ROBOLEFF; (2) Dr. PÉTREQUIN.

(*Gaz. Med. de Lomb.*, Sept. 20, 1858; *Archiv. Gen.* March, 1859; and *North Amer. Med.-Chir. Rev.*, July, 1859.)

1. Sustained by the fact of the galvanic current decomposing fluids, Dr. Roboleff has applied this means to the treatment of serous effusions into the sac of the tunica vaginalis, which sac becomes so changed under the influence of electricity, as to arrest the abnormal secretion.

In support of this novel treatment, the author reports four cases of hydrocele, three being radical cures. The subjoined case will serve as an illustration of the treatment.

A cabinet-maker, thirty years of age, had suffered for fifteen months from a hydrocele of the left side, which had attained the size of the head of a newly-born child. Being placed in a convenient position upon an elevated bolster, with the thighs slightly flexed and widely separated, two platinum needles were introduced, as far as possible from each other, into the scrotum. To the complete astonishment of all present the hydrocele had disappeared, and in two days the patient left the hospital completely cured. The author saw the case several months afterwards, and convinced himself that the cure was a radical one.

The apparatus employed by Dr. Roboleff consists of the platinum needles, of the screws conducting wires, and battery of Bunsen, or Daniell, composed of from two to four simple circles; the latter apparatus being preferable on account of the acid not becoming troublesome. The operation consists of four stages—First, introduction of the needles; second, connection of the battery; third, change of the poles; and fourth, withdrawal of the needles. The needles should be guarded by small rings, a short distance from their points, in order to prevent them from penetrating too deeply. During the whole proceeding it is necessary to compress the scrotum slightly, and be careful lest the vermicular movements of the dartos force the needles out of place.

2. M. Pétrequin, of Lyons, in a note to the *Académie des Sciences*, January 17, 1859, states that, in view of the great changes produced by electricity upon absorption and secretion, he conceived the idea of applying this fluid to the treatment of dropsies, and particularly of hydroceles. In 1849 he operated upon a patient, forty-five years of age, who had an old, voluminous hydrocele. The poles of a Bunsen's battery were applied, one to the base, the other to the summit, of the tumor, for about half an hour. The next day the hydrocele had disappeared, and no relapse had taken place at the end of the month.

ART. 135. *On the Iron-wire Seton in Hydrocele.*

By Dr. GILLESPIE, Surgeon to the Royal Infirmary, Edinburgh.

(*Med. Times and Gaz.*, Sept. 10, 1859.)

The result of Dr. Gillespie's experience is utterly opposed to that of Dr. J. Young (v. 'Abstract,' XXIX, p. 147),

CASE 1.—A. K., set. 68, a laborer, was admitted into the Royal Infirmary, January 26, 1859, with an indolent ulcer of the leg, and a hydrocele of the left side, of four years' duration. As regards the hydrocele, palliative treatment only has been adopted, it having been tapped about twice a year. It is now of the size of a large coco-nut. On February 10th, two iron wires were passed through the anterior part of the hydrocele by a long lance-pointed packing-needle. The fluid trickled through the openings thus made, and the contents were soon evacuated. The scrotum was then supported by bandages, and the patient kept his bed. Eighteen hours afterwards, the left side of the scrotum was swollen to nearly the original size of the hydrocele. The swollen part very hard, but not very tender to the touch. Twenty-four hours after its introduction the seton was removed.

No symptomatic fever followed, and under rest, fomentations, and bandaging, the swelling satisfactorily subsided. For a week thereafter the case was exhibited to the students as a radical cure of hydrocele by the metallic wire: but, unfortunately, symptoms of a reappearance of fluid began to show themselves, and by the 9th of March, the tumor was as large as ever. The iron-wire seton was again introduced in a similar manner, but involving a larger portion of the sac, and it was determined to retain it longer. Thirty hours thereafter the parts were hard and swollen. The seton was removed on the expiration of forty-eight hours from its introduction. The progress of the case seemed satisfactory till the evening of the second day, when high fever set in, the pulse being 130, the tongue dry and furred, and the scrotum very painful and tender.

The tumor increased in tenseness, and an obscure feeling of fluctuation gradually became developed. A free incision was made, and a quantity of very fetid, bloody, purulent matter was evacuated. The cavity of the tunica vaginalis was eventually filled up by granulations, and the patient left the hospital on April 24th, his cure by the wire seton having occupied exactly seventy-three days.

During my treatment of this case, but, unfortunately, before its failure, another opportunity presented itself in private practice, for my putting to a test the value of the wire seton. I consider the following case a most instructive, and, indeed, conclusive one, for I was enabled to institute a comparison between the simple tapping, the tapping with injection of iodine, and the wire seton.

CASE 2.—J. P., set. 68, a master shoemaker, of regular habits. The patient applied to me for advice, owing to his suffering much inconvenience and difficulty in making water. I found this arise from large hydroceles on either side, which almost completely concealed the orifice of the penis. On the left side the tumor was of an oval shape, on the right it was more pyriform. I determined on passing the wire seton through the left side, and accordingly did so in the way recorded in the previous case. On tapping the lower part of the right side, it became evident that a large hydrocele of the cord also existed, so, leaving alone the tunica vaginalis after its evacuation, I tapped and injected about half a drachm of the Tine. lod. into the hydrocele of the cord. During the first hour or two, the patient complained most of the injected tumor, but before evening the pain had much subsided. Next day the scrotum was as large as ever, most tender over the seton. The following day, forty-eight hours after its insertion, the seton was withdrawn, and the scrotum was well fomented. On the third day, the scrotum over the place of insertion of the seton was very red and painful, while the hydrocele of the cord felt solid, but comparatively free from pain. The hydrocele of the right side was much smaller in size. It is needless to follow this case very minutely, suffice it to say, the sac of the hydrocele, through which the seton was passed, suppurated, requiring two different incisions for the evacuation of matter, and taking nearly three months ere it became perfectly healed; the serous fluid of the hydrocele on the right side was re-absorbed and has never reappeared; while all that can at present be felt of the hydrocele of the cord is a slightly hard, but not painful, lump, about the size of an almond, lying at the upper part of the scrotum.

It will be seen from the details of these cases, that the treatment by the wire seton is not always such a simple, painless, and effectual remedy, as its advocates would make out. On none of the three occasions on which I used it was it allowed to remain so long as in all the cases recorded by Dr. J. Young, yet supuration of unusual severity occurred twice. The uncertainty of the method may be shown by what took place on removal of the seton, at the end of twenty-four hours. An apparent cure was effected, and had it not been that the patient was kept in hospital by his sore leg, I might still have been under the delusion that I had achieved a triumph with the metallic suture; and the patient by his dismissal, cured, might have been spared a long subsequent course of suffering.

I suspect if Dr. J. Young will gather together his cases of cure at the end of a few months' time, he will find several in the same predicament as the patient of whom he reports on July 30th, 1859:

"I have operated on another patient with equal success. The patient was by trade a smith. The hydrocele was produced by a severe stroke. This patient, after being cured, became careless, got intoxicated, and received another blow, which reproduced the disease a month or two after being cured."

If such a radical cure is to involve the necessity of the patient's avoidance of carelessness, his abstinence from drink, and freedom from blows, the morals of the individuals afflicted with hydrocele must also be taken under treatment.

(C) CONCERNING THE UPPER EXTREMITIES.

ART. 136.—*Fracture of the Forearm from muscular exertion.*

By Dr. HUMPHRY, Surgeon to Addenbrooke's Hospital, Cambridge.

(*British Med. Journal*, July, 16, 1859.)

Many examples of fracture of the humerus from muscular action have been recorded, but very few of fracture of the other long bones: indeed, we do not know of any, except two cases in which the femur was broken during a violent spasm. In the present case, each bone gave way at the narrowest part of the shaft, which accords with the observation that, in adults at least, the narrowest part of a bone is also the weakest part.

CASE.—A healthy and moderately strong man, æt. 36, came to the hospital May 25th, 1859, stating that ten weeks previously, when he was shoveling earth with a spade, the spade caught against a root in the ground, and the jar broke his forearm. It was treated as a fracture, with splints, &c., by a surgeon. The radius was broken a little below its tubercle, and the ulna about an inch and a half from its lower end; and the position in which they had united was not very good, there being a marked projection of each bone at the situation of the fracture, on the palmar aspect of the forearm. There was, in addition, as a consequence of the fracture, paralysis of the *extensor carpi metacarpi* and *primi internodii pollicis*; the cause of this was not very clear.

ART. 137.—*On amputation at the Wrist-joint.*

By Mr. NATHANIEL WARD, Assistant-Surgeon to the London Hospital.

(*Lancet*, May 21, 1859.)

In irremediable injuries of the hand, amputation at the wrist-joint appears to be preferable to the removal of the mutilated part by an operation performed at the lower part of the forearm—a practice still recommended by some surgeons at the present day. In the former proceeding, if the steps necessary during its performance are carefully attended to, the inter-articular fibro-cartilage and saciform synovial membrane between it, the radius, and the ulna, are left uninjured; and when the stump has healed, the rotatory movement of the one bone on the other is more or less preserved, and consequently a more extended range of movement allowed to any mechanical appliance made use of as a sub-

situate for the deficient portion of the limb, than if amputation had been had recourse to through the lower part of the radius and the ulna, in which instance ankylosis between them would be likely to result.

"Amputation at the wrist-joint is best performed by making a dorsal and palmar semi-elliptical flap. The apices of the styloid processes being taken as the guide for the limits of the incisions, the first incision is made over the back of the hand when in a state of flexion, its most prominent part being about three quarters of an inch from the carpal surface of the radius. The skin and soft tissues beneath it are then dissected from before backwards, and the joint is opened by a division of the dorsal ligaments. The hand is then placed in a state of supination, and extended, in order to render tense the flexor tendons; and a similar flap, but more extensive (the prominent part of its border being on a line with the lower third of the carpus), is made from the palm, by dissecting the soft tissues in a similar manner from before backwards. The first part of this flap is to be made of skin and connective tissues only, the flexor tendons being divided about a quarter of an inch below the joint. The palmar and lateral ligaments are then cut through, and the operation is finished.

"By this method of operating two neat flaps are made, and the border of one can be brought into accurate apposition with that of the other. This cannot be effected by the ordinary method of proceeding, which consists in first making a dorsal flap, then entering the joint, passing the knife between the carpus and bones of the forearm, and finishing the operation by carrying the instrument from behind forwards through the palm, and so making the anterior flap. The objections to this method apply only to the second part of the operation. The hand being in a state of flexion on the forearm, in order to admit of the easy introduction of the blade of the scalpel above the upper row of carpal bones, the inter-articular fibro-cartilage is apt to be injured by the edge of the cutting instrument. The tendons of the flexor muscles, being in a state of relaxation, are also apt to be drawn before the scalpel, and after having been cut through to require subsequent shortening; and, in consequence of the prominence of the pisiform, uncariform, and trapezium bones, the resulting cutaneous flap would be more or less angular and jagged, and properly here and there button-holed, thus interfering with and retarding the reparative process."

These remarks are illustrated by four enacs.

ART. 138.—*Amputation of the Arm and Scapula.*

By Dr. H. B. HORLBECK.

(*Charleston Med. Jour. and Rev.*, July, 1850.)

This case occurred in the practice of the author's father, Dr. Elias Horlbeck, of Charleston. Only three cases of the same kind appear to be on record.

CASE.—On the 11th of December, 1857, my father, Dr. Elias Horlbeck, was called to visit Caesar (belonging to Mr. T. B. Lucas), at West Point rice mill, who was reported to have been grievously wounded in some machinery at the mill. He arrived very soon after the accident and found the patient to be a muscular negro, from thirty-five to forty years of age, who, while putting pounded resin upon a twelve-inch leather band (to keep it from running off), in revolution round a wheel in motion, had his hand engaged between the band and wheel. His efforts to disengage it were unsuccessful, and the hand, forearm, arm, &c., passed rapidly between the wheel and band. It was carried round until the shoulder came to a large beam which stood up and down alongside of the wheel, about one and a-half inch from it. His body stopped, of course, as soon as it met with the resistance of the timber, and his arm, carried on in the revolution, was torn from the trunk at the shoulder. He fell to the ground from the platform on which he was standing, about three or four feet high, got up, unassisted, and walked to the outside of the door of the mill, a distance of about twenty or thirty yards. Here he became faint, and fell to the ground: he was immediately taken up by some of the workers of the mill, and removed to the hospital on the premises, where I found him a short time afterwards, having arrived there a few minutes after my father. On examina-

tion an irregular, oval wound disclosed itself, the greater diameter of which was from above downwards. It extended from the humeral end of the clavicle (which was covered by skin, to the lower border of the axillary space, for about six inches, and from side to side about three inches, in the site of the axilla. The surface of the wound was covered by a thin coagulum of blood, and the extremities of three or four large nerves of the axillary plexus, were lying bare, like whip-cords over it. The depth or centre of the wound was filled up by a rather thicker clot, which could be distinctly seen moving up and down with each pulsation of the axillary artery. The patient lay on his left or sound side, with his clothes on, as when he fell. He complained of some pain from the soreness of the wound, but said that he suffered no pain at the time of the accident, and only discovered his loss as he saw his arm fall out from the wheel when brought around by the revolution of the band. His pulse was beating naturally, seventy-six strokes to the minute, regular, and of good firmness. He had lost but little blood, the quantity could, of course, not be exactly measured, but there was a coagulum on the floor of the mill, where he first fell, amounting to about a pint or two. He had on a cotton shirt and an under one of close fitting flannel. These were both torn through circularly, at the shoulder joint, and were more or less stained by blood, but not by any means saturated. Without disturbing them, farther than to cut away enough to expose the entire extent of the wound, a soft, folded linen cloth, dipped in cold water, was applied, and he was made as comfortable as possible.

The question now came up for consideration whether it would be advisable to disturb the parts and attempt to take up the main artery, or to submit the case to the efforts of nature. The patient being quiet, and no imminent indication for interference presenting itself, the latter course was decided on. The reasons for so doing were the fact that on examining the artery in the separated arm, it was found to be divided low down, where the axillary becomes humeral, leaving considerable interval up to the next collateral branch, amply sufficient for the formation of a clot, and the effusion of plastic lymph for its permanent closure. The portion, too, on the arm was not gaping, as when an artery is cut across, but was closed by the external cellular coat being drawn out to a finely closed point, and twisted, closing its extremity as if by torsion. A similar condition, it was expected, existed at the extremity within the wound. These circumstances, with the recollection that in the celebrated case of Samuel Wood (known as the Cheselden case), analogous to the present, no after bleeding had taken place, induced us to leave this large artery untied.

The cure of the case was confided to me, with instructions to restrain any hemorrhage which might arise, until assistance could be obtained. The circulation continued during the afternoon, natural. The patient had a good, firm pulse, with normal warmth of skin, no shock was manifest, and he was very quiet, complaining only of soreness, and moaning now and then. He was directed to have a full dose of Tinct. Opii given him, and to be kept in the greatest quiet.

I was detailed, in company with my fellow students, Messrs. Palmer and Cain, to sit up with him, in the event of accident, being provided with all the means and appurtenances for arresting hemorrhage. We watched the case with great interest and some anxiety, but happily the necessity did not occur, and we were not troubled on that score. He slept most of the night, with little or no restlessness. The cold cloths were removed as soon as they became dry, and fresh ones substituted, and towards morning thirty drops more of laudanum were given him. The weather was very cold.

December 12th.—On examination to-day, the surface of the wound presented a similar appearance to that of yesterday. The superficial coagulum still covering the wound, and the arterial pulsation very apparent, but the extremity of the artery was completely covered by the clot, and could not itself be seen. In the situation of the vacancy left by the abstraction of the scapula, behind, a large tumefaction had taken place, occasioned by effused blood in a coagulated condition. Anteriorly, in the situation of the pectoral muscles, the swelling was slight, there being no effusion here in consequence of no cavity being left

by tearing out of the muscular substance. General condition of the patient very satisfactory, no constitutional or febrile disturbance having been set up. The pulse was rather stronger than natural, not frequent. There existed no thirst, and he experienced some desire for food. In the evening thirty drops of Tinct. Op. again administered, to ensure quiet. The cold water applications constantly applied.

13th.—To-day there occurred no circumstance requiring interference, except the removal of his bloody clothes, which had become dry and stiff, and which had not been changed from fear of disturbing him. No pain or inconvenience from the wound. He complained of a lapped feeling of uneasiness, caused by his having to lie principally on his left side and back. Some serous exudations occurred to-day from beneath the skin on the back. Gruel, and bread, and tea, for nourishment, were all that was given him. His bowels were moved naturally, without assistance. There is no necessity to pursue the daily report of his case, as no symptom occurred worthy of being detailed.

16th.—The whole of the external congluta had by this time separated. Suppuration from the region of the scapula commenced, and a agula of blood, mixed with blood, could be pressed out. No discharge from the region in front. The tumefaction in the region of the pectoral muscle subsiding. The pulsations of the artery were by this time not so marked. The great apprehension of secondary hæmorrhage slowly diminished, and we began to indulge a confident hope that we should escape so disastrous an event.

Up to this time I had been with him a great deal, sharing the nursing with my fellow students, and no drop of fresh blood had issued from the wound. Our patient was seated up a short while in bed, and was as cheerful as if laboring under an ordinary and trifling wound. From this time long, adhesive straps were laid across the wound, approximating the edges, and far enough posteriorly to exert some pressure upon the cavity left by the torn-out scapula.

20th.—Discharge diminishing from the sinus on the back; whenever it was dressed the purulent contents were pressed upwards, then outwards. From this time there was a gradual contraction of the sinus.

29th.—The skin had entirely adhered to the parts beneath, and only the space left by the loss of the arm in front to be healed. This was filled with healthy granulations, and rapidly progressing to cure.

January 20th.—Six weeks after the accident the parts were entirely healed over, and the patient was walking about attending to business.

Upon inspection the limb presented the appearance of having been subjected to much pressure. None of the bones of the arm or fore-arm, however, were fractured. The scapula, on the contrary, was broken in a good many places, probably on account of its irregular shape, and from the amount of pressure which it had been subjected to in passing between the wheel and land. The upper part of the arm was entirely denuded of skin, as though it had been separated to form a flap for the stump; it was torn off below the shoulder-joint in an oblique direction, the greatest deficiency being on the inner side of the humerus, leaving the cellular sheath of the vessels bare. On separating it, the extremity of the artery was found free from cellular connections for about one fourth of an inch. The mouth of it was not open and gaping, as though a clean cut had been made, and the end presented a cone-shaped appearance, closed by a slight twisting, as if by torsion. The external cut and sheath being drawn to a fine point, an inch was cut off and put in spirits. The entire plexus of nerves were separated below the level of the head of the humerus, accounting for the length of the nerves remaining on the trunk.

Muscles left entire on the avulsed arm.—*Infra spinatus*; *teres*, minor and major; all of the *deltoid*, with the exception of a few fibres at its insertion into the clavicle; *supra spinatus*, very much torn, but all brought away, about three inches of the *latissimus dorsi* came away with the arm; same quantity of the great pectoral; no traces of the lesser pectoral, the coracoid process being bare at its point of insertion.

Neither could any part of the *rhomboides* be seen. Three inches in width of the whole insertion of the *serratus magnus* was torn off with the arm. The *teres* muscles, although both very much lacerated, came away entire.

The coracoid process of the scapula was broken off at its base, but kept in position by the short head of the biceps. The infra spinal fossa was very much broken up, the spicula running parallel with the outer border of the scapula. Posterior portion of the scapular border, one and a half inches, detached from the body of the bone, but connected by muscular tissue.

The posterior superior angle, corresponding to the attachment of the levator anguli scapulae, cannot be found, and we suppose it to be the only portion of the scapula which may have been left behind.

The entire clavicle left on the patient separated at its articulation with the acromion.

(D) CONCERNING THE INFERIOR EXTREMITIES.

ART. 133.—*Simple Ulcers of the Legs treated by Iodide of Potassium internally, without rest.* By Drs. Tigé and Trastour, of Nantes.

(*Journal of Pract. Med. and Surg.*, July 7, 1859.)

Every method of treatment directed against diseases frequently observed in the laboring classes, and which does not compel them to interrupt their daily occupations, deserves favorable notice. Thus Baynton and Ph. Boyer rendered a great public service in discovering and propagating the treatment of ulcers of the legs by the application of straps of adhesive plaster. This very year, we saw the late Ph. Boyer, but a few months before his death, apply this method which Roux imported from England in 1814. He began by cauterizing deeply the sore with lunar caustic, and then with straps of plaster about an inch in breadth, and six or eight inches longer than the circumference of the limb, he covered the ulcer with a series of imbricated rings, the uppermost of which reached about an inch above the sore, and the lowest strap as far below. A roller or an elastic stocking was afterwards applied to the leg and foot, and was preserved night and day. The apparatus was removed after forty-eight hours, and subsequently at irregular intervals whenever the patient complained of pain. Since the year 1832, when Ph. Boyer proposed to the *Conseil général des Hôpitaux* the adoption of this method, and also that individuals, bearing ulcers of the legs, should in future be treated only as out-door patients, the duration of the treatment has been on the average twenty-six days. In the wards of Professor Roux and Velpeau, where this method was adopted, and where moreover the patients kept constantly in bed, fifteen days was the mean average of the same treatment. It is, however, a fact proved by observation, that the cicatrix in the first instance is stronger, more supple, and resists better than the scar formed while the patient was confined to his bed. Boyer's treatment leaves, therefore, fewer chances of relapse, and further, the invalids are permitted to walk, a twofold advantage which cannot be too highly appreciated in the case of indigent persons.

However, if Baynton's method is in many instances productive of beneficial results it occasionally fails even in cases which are under no specific influence; it is therefore useful that the surgeon should have at his disposal some other means possessed of the same advantages, and according to two respectable practitioners of the city of Nantes, Drs. Tigé and Trastour, iodide of potassium supplies the required desideratum.

In a recently published paper, Mr. E. Trastour states that for the last ten years Dr. Tigé has been in the constant habit of exhibiting iodide of potassium for the treatment of ulcers of the legs, without once having failed in obtaining a cure. The author estimates at upwards of twenty the number of patients who have recovered in spite of the most adverse circumstances. The following is a specimen of the cases recorded in Mr. Trastour's publication.

A husbandman, *æt.* 55, was affected for ten years with an ulcer situated on the internal surface of the lower half of the left leg; the sore was broad, its fundus was of a purple hue, its depth five lines, the secretion sanious and reddish; the skin around it was tumefied, and covered a vascular network of

varicose veins which extended as far as the foot. On April 26th, Mr. Tigé prescribed from half to three-fourths of a drachm of iodide of potassium daily, fomentations with the decoction of walnut-tree leaves, and pressure with a linen roller. On May 8th the ulcer was almost healed, but the skin being still tight, red and shining from the foot to the middle of the leg, the treatment was persevered in, with the addition of linseed-meal poultices. On May 22d the wound was entirely cicatrized, and the patient, who during the whole time of medication had not interrupted his agricultural labors, walked eight miles without the least pain, for the purpose of exhibiting his leg.

Mr. Trastour relates seven or eight equally satisfactory cases which occurred in his own practice. He further remarks, that the method towards which he calls the attention of the profession prevents in no wise the application of topical remedies, which alone in numerous cases are sufficient to ensure success; but the facility, speed and solidity of the cure due to iodide of potassium, united with external applications, in cases in which the latter would have been inefficient, seem to him unquestionable.

The doses in which Messrs. Tigé and Trastour exhibit the drug are from half a drachm to one drachm daily; in severe cases, Mr. Trastour has given as much as one and a half drachm, a quantity he has never exceeded. He prescribes it in water, a tablespoonful to every quarter of a drachm before meals. When the medicine is prescribed in large quantities, two ounces for instance at a time, the apothecaries of Nantes have consented to sell it at the low price of two pence a drachm, to poor persons. On the average, the cost of the treatment is from one penny to three pence daily during a month or two, a very moderate expenditure, when it is further considered that the patient not being reduced to inaction, is enabled to earn his livelihood.

ART. 140.—*On the treatment of Fracture of the Thigh.*

By Dr. G. F. SHARDY, Resident-Physician in the New York Hospital.

(*New York Journ. of Med.*, March, 1850.)

Dr. Shardy in speaking of the mode of treatment in practice in the New York Hospital since 1837, when Dr. Gordon Buck substituted Dr. Physick's apparatus (a modification of Desault's) in all its details. "This apparatus consisted of a long outside splint, reaching from the axilla to eight or ten inches beyond the foot. It was perforated at its upper end with two half-inch holes for the purpose of securing the ends of the counter-extending perineal strap, and the extending band, formed of a silk handkerchief, was passed over a block that stood out from the splint below the foot, being secured finally in a hole further down at the lower end of the splint. There was also a short splint reaching from the perineum as far as the inner ankle, and a body-belt, passing around the thorax, ticked to the upper end of the long splint. In addition to all this, chaff pads were interposed between the splints and the limb. In applying the splints, they were first rolled up in a splint-cloth, and well secured in place by four separate bands passing around the whole apparatus.

"After making use of the apparatus for some time, it was found to be defective in many particulars; for instance, the readjustment of the splint-cloth was found to be very troublesome, as it had to be repeated daily. The first improvement, then, of Dr. Buck, was the substitution for these cloths of pads, which were fastened to the splint. The next improvement made by the doctor was a pocket in the body-belt, and to the lower edge of this pocket was fastened buckles for the counter-extending strap. By this arrangement the splint could be removed for the purpose of readjustment without disturbing in any way either the belt or strap.

"Notwithstanding the utmost care and pains bestowed on the adjustment of the extending band to the foot, it was found impossible to prevent sloughing and excoriation, either above the heel, or over the instep. Owing to the evil consequences of such extension, it was finally supplied by well-adapted lateral pressure, the limb having been previously extended. This being the case, it was necessary to reapply the pressure daily. This method was persevered in

for some time, but was at length abandoned for the use of the adhesive plaster as a means of extension. It was first employed in 1850, during the residence of Dr. Frederick D. Lente, now of Cold Springs, Putnam County. This gentleman, by his zeal and intelligence in its application, successfully inaugurated its use in this institution, as a valuable auxiliary in the treatment of this fracture. Buck's modification of Physick's Desault is certainly a triumph in modern surgery, so far as it relates to shortening and deformity. I have now noticed the principal modifications of Physick's splint: there are, however, several minor ones, which will appear in the subjoined description of its mode of application.

When a patient is admitted with a fracture of the thigh, there being generally a good deal of swelling present, the limb is placed upon the double inclined plane until all the tumefaction has subsided. Then he is prepared for the application of the straight apparatus. The first step consists in the preparation of a double band of adhesive plaster about three inches in breadth, which is cut long enough to extend from below the point of fracture on either side of the limb, forming a loop underneath the foot, a sufficient distance from the sole to allow of the introduction of a square block. This block is a little broader than the foot, and serves to prevent the pressure of the adhesive bands over the ankles, and also affords a firm point, to which is attached a short cord for extension. This adhesive strap is applied smoothly to the sides of the limb, and a bandage applied over it, leaving the loop free, extension being kept up in the mean time by an assistant. The body-belt and perineal strap are next adjusted, after which the compression splints are applied in the usual way around the seat of fracture. Then the upper end of the long splint is placed in the pocket of the body-belt, the limb drawn down as far as possible, and kept fully extended by means of a stout cord over the footpiece. This cord is attached to a ring in a large wooden screw, which plays through the block, standing out from the internal surface of the splint. Next the inside splint, extending from the groin to the malleolus, is applied: pads of blanket are then stuffed on either side to adapt the splint to the inequalities of the limb. All this having been done, the last step in the operation consists in binding the splints together, which is accomplished in the following manner. Three strips of bandage are passed at equal distances from each other behind the limb: one just below the trochanter, another just below the knee, and a third above the ankle.

The ends of these strips are then brought forward between the limb and the splints, carried over the anterior edges backward over the outside of the apparatus, crossed behind, and finally brought forward around the whole again and tied in front. By this arrangement a sling apparatus is made for the whole limb, at the same time the splints are nicely secured to each other. The extending force is regulated by means of the screw through the block. This block, I should say, slides in a fenestrum, being secured at any part by a screw arrangement, by which means the proper distance between it and the foot can be regulated in order to have the full advantage of extension.

This, then, constitutes Buck's modification, in other words, the New York Hospital splint, which, since its first introduction into practice, has never yet betrayed the confidence that has been placed in it. Perhaps the greatest addition toward perfection that it has had was the employment of the adhesive plaster: since that time, the results may be judged of from the following statement of seventy-four cases which involved the shaft of the femur, exclusive of either extremity. These cases are taken in the order of their occurrence from the hospital records.

"Seventy-four cases have been collected.

"Of this number, nineteen resulted without any shortening, the shortening in the remaining fifty-five averaging less than three-quarters of an inch. The ages ranged from three to sixty-four years. Fifty-seven were over twelve, and seventeen under that age. Of the fifty-seven there was no shortening in thirteen cases, but in the remaining forty-four the shortening was a fraction over three-quarters of an inch. Of the seventeen under twelve years of age, six resulted without shortening; the remaining eleven averaging less than half of an inch shortening."

ART. 141. *Popliteal Aneurism treated by Compression and Manipulation.*
By Mr. TEALE, Surgeon to the Leeds General Infirmary.

(*Medical Times and Gazette*, March 12, 1859.)

Joseph M—, æt. 48, a laborer, who had been discharged from the army five years ago, was admitted into the Leeds Infirmary, on October 26, 1858. Three months before admission he first observed a slight swelling of his left leg, which was soon followed by pain around the knee and along the calf. He attributed his ailment to a sprain received the day before, while he was exhibiting to his companions a piece of military drill, consisting of arching the trunk forward and backward so as to touch the ground with his hands in both directions. Two or three days afterwards he discovered a small prominence, like a marble, in the ham, which has continued to increase until the present time. It is a remarkable fact, that during the Crimean War, Mr. Teale had at one time in the hospital three cases of popliteal aneurism, the subjects of them all being militia men. On the admission of M— into the Infirmary, an oval tumor, about the size of a small lemon, occupied the left ham, and exhibited the usual signs of aneurism.

Oct. 26th.—On this day at noon, treatment by pressure of the artery as it passes over the pubes was commenced by means of the fingers, several students having kindly undertaken the treatment in turns.

30th.—This treatment was continued during twelve hours of the day, and left off during the night, until the present date. The tumor has become a little smaller, and perhaps harder; but as the improvement is not greater than has been frequently derived from mechanical pressure, the gentlemen were released from their compressing duties, and pressure by the ring tourniquet at the upper and middle portions of the thigh was substituted for manual pressure. The patient was taught the course of the artery, and was directed to vary the seat of pressure from time to time as the part became painful. He was, moreover, instructed to leave off the pressure at night, so as to secure sufficient rest.

Nov. 2.—Size of tumor not much lessened, but its walls feel thicker; pulsation is somewhat less, and is controlled by a slighter amount of pressure. At the outer side of the knee a branch of an artery can be felt pulsating.

5th.—Another enlarged anastomosing branch felt at the inner side of the knee.

9th.—Tumor slightly diminished in size, and more firm to the touch.

12th.—Not much change since the last report. Mr. Teale now made an attempt to disturb the fibrin within the sac by moderate manipulation.

14th.—No material change since the last report. Mr. Teale repeated the manipulation with much greater freedom, kneading the tumor in various directions. This was done at 1 p. m.

15th.—An hour and a half after the last manipulation, the tumour had entirely ceased to pulsate, and had become a solid mass.

26th.—The tumor having rapidly decreased in size, the patient left the hospital this day cured, having been able to walk about the ward for a few days.

ART. 142. *Wound of Femoral Artery and Vein.*
By Mr. HOLTHOUSE, Surgeon to the Westminster Hospital, &c.

(*British Med. Journal*, May 7, 1859.)

This case is interesting, as an example, and one almost free from doubt, of a wound implicating both the main vessels, but in which gangrene did not result. It is just within the bounds of possibility that the large venous stream which gushed out from close beside the wound in the artery might have proceeded from a large vein divided close to its entrance into the femoral; but this is highly improbable, since the vein does not usually receive any such branch in Hunter's canal; and the appearance and situation of exit of the stream of blood led Mr. Holthouse to the confident conclusion that the vessel implicated was really the trunk of the vein.

CASE.—The history of the case is rather curious. On January 15th, that is,

twelve days before the patient's admission—he was shaving a piece of wood, which he held between his knees, with a sharp chisel about an inch wide, when the tool slipped, and penetrated the inner side of his right thigh to a considerable depth. Free hæmorrhage from the wound, to the amount of three pints, the friends say, immediately followed, and the blood came away in a jet which was projected to several inches. It was stopped by pressure, and the man kept his bed the whole of that day, but the surgeon who had been sent for at the time of the accident ordered him to get up and walk about the following day, which he did, going himself to see his "doctor," and walking sometimes as much as a mile. Immediately after the hæmorrhage which followed the infliction of the wound had ceased, a hard swelling formed around the wound, which pulsated so distinctly that it could be seen through the bedclothes. His medical attendant attributed the swelling to "proud flesh," and ordered it to be poulticed and rubbed with sweet oil. Although the man suffered severe pain in the wound, and could get little sleep in consequence, there was no recurrence of bleeding till eleven days after the accident, when a full stream of arterial blood burst from the wound while he was washing himself. This was repressed, as before, by tight bandaging over and above the wound; and he went to bed, and kept quiet for the rest of the day. The following morning, about eight o'clock, the hæmorrhage broke out afresh, and was again stopped by tightening the bandages, which had not been removed from the limb. Immediately after this he was brought to the hospital, being exceedingly pale and weak from loss of blood; his pulse 150; skin cool. A large pulsating tumor was situated about the middle and on the inner side of the right thigh, and the whole limb was greatly œdematous, from the pressure which had been made by the bandage to restrain the bleeding. A tourniquet having been placed round the upper part of the thigh, the bandages were removed, in order to examine the swelling. In the centre of this there was a small wound, from which a little venous blood trickled, and, while the patient was being questioned as to its history, a sudden gush of arterial blood took place, which indicated by its size that it came from the femoral artery. The tourniquet was immediately tightened, and preparations were made for securing the wounded vessel. This took place at 11.30 a.m., the patient being under the influence of chloroform. Mr. Holthouse commenced the operation by enlarging the original opening upwards and downwards to the extent of four or five inches. This exposed the sac of the false aneurism, which was filled with coagulated blood; and, when this was turned out, a large wound was discovered in the femoral artery, which lay at a great depth from the surface, on account of the œdematous state of the limb, induced by long-continued pressure. The arterial stream which issued from the wounded artery when the tourniquet was loosened, was accompanied by a very large venous one, which prevented the operation from being proceeded with till a ligature had been applied tightly below the knee. This effectually commanded the hæmorrhage from the vein; and a ligature was then passed around the artery below the wound, and another above it, which completely stopped all further bleeding from that vessel. A small artery on the side of the wound was then secured; and the wound itself was stuffed with pieces of sponge, in order to keep up pressure on the vein which had bled so freely. The edges of the incision were then brought together by strips of plaster, which completely encircled the limb; and a flannel roller was applied over them from the foot to above the wound, and a hot-water bottle to the foot, which, with the whole limb, had been quite cold from the time of the patient's admission, in consequence of the pressure to which it had been subjected. A small quantity of brandy and water was administered upon the completion of the operation, and shortly afterwards the following draught: *R. Tincturæ Opii ℥xx; Aetheris Chlorici ℥xx; Aquæ ʒiiss.* Eight p.m. Reaction had taken place in the limb, and the foot was now warmer than the left. The skin was hot; pulse 156.

28th.—He had no unfavorable symptoms; pulse 120. The right foot was still the warmer. *R. Tincturæ Ferri Sesquichloridi ℥x; Aquæ ʒi.* M. Fiat haust. ter die sumendus.

29th.—He vomited this morning, after taking the iron; but, in other respects, he was doing well. Pulse 106.

30th.—The wound was dressed this morning. It looked healthy; there was a free secretion of laudable pus. The sponges were removed, and the edges of the wound were brought together by long pieces of the water-strapping pretty tightly applied, the flannel bandage being replaced as before.

Feb. 1st.—The wound was looking very healthy. The ligature which was placed on the small artery came away. He was ordered to have some fowl for his dinner.

3d. The lower of the two ligatures placed around the femoral artery came away this morning; that above was still firm. The wound was looking as healthy as could be.

5th.—The ligature on the proximal end of the artery came away to-day (tenth day). The wound continued to look perfectly healthy, the man was gaining strength and color, and ate two chops, and took a pint of porter daily.

9th.—Both feet were of equal temperature, but some oedema of the limb still remained below the wound. The flannel bandage was still applied from the toes to the groin. He complained of some numbness of the foot.

20th.—The wound was almost healed. Some numbness of the foot still remained, and he complained of occasional pain going up to the groin; but in other respects he seemed perfectly well. He was walking about this day for the first time.

25th.—He was discharged at his own request, looking and feeling quite well; but he had a small sore on his right heel, caused by pressure while lying in bed.

ART. 143.—On Inflammation of the Bursa under the Tendon of the Sartorius Muscle. By ROBERT L. MACDONNELL, M.D., Surgeon to St. Patrick's Hospital, Montreal.

(*Montreal Medical Chronicle*, June, 1852.)

There is a form of bursal enlargement met with about the knee-joint, which Dr. Macdonnell would suppose to be of frequent occurrence, if he were to judge from his own experience, but which has not been noticed till recently by writers upon the affections of the bursæ. This is acute and chronic inflammation of the bursa, lying under the tendon of the Sartorius muscle, near its insertion into the head of the tibia.

The following cases will serve as examples of the acute and chronic forms of the disease:

CASE I.—A strong, healthy young woman, unaccustomed to walking long distances, passed all day strolling about the Mountain of Montreal, in company with her friends, and returned to town, greatly fatigued, in the evening. About the middle of the night she awoke, suffering acute pain in the right knee, and at the upper and inner part of the head of the tibia. The next day the pain increased, and she was unable to extend the leg or to bear her weight upon it. Two days after, she was admitted, under Dr. Macdonnell's care, into the Montreal General Hospital, of which institution he was then one of the surgeons. On examination, a painful swelling was noticed at the inner side of the head of the tibia, about the size of a hen's egg; the skin covering it was tense and shining; the tumor advanced upwards to the inner edge of the patella; and, when pressure was made upon it, it became somewhat less, and could be pushed under the tendon of the sartorius. The form of the tumor was changed according as the leg was flexed, extended, or adducted, and pain was greatly increased when contraction of the sartorius was made; the leg was slightly flexed. There was no swelling at either side of the patella, and the shape of the knee-joint itself was unchanged.

The usual antiphlogistic treatment was employed without any benefit. On the contrary, the tumor became larger, though less painful. He was engaged in pointing out to the students the peculiarities of the case, when his friend, Dr. Peltier, physician to the Hôtel Dieu, entered the ward, from whom he borrowed a small trocar, such as are put up in French pocket-cases, with which he punctured the tumor, and drew off an egg-cup full of clear fluid. The wound was closed with plaster, a compress placed over the seat of the

tumor, and a roller carried round the joint. She left the hospital a week after, quite well.

The above case occurred in the summer of 1848; and since then, he has met with similar cases. Being under the impression that he had first seen an example of this disease in the practice of Mr. Adams, of Dublin, and not finding any allusion to it in his article on the "Abnormal Condition of the Knee-Joint," published in *Todd's Cyclopaedia of Anatomy*, he wrote to that distinguished surgeon on the 13th of November, 1857: mentioning, at the same time, that he could find only one author who alluded to the matter, viz., Nelaton, in his "Clinical Surgery," published by Atlee, in 1855, seven years after he had treated the foregoing case. Mr. Adams stated, in reply, that he had not met with the disease, although he had seen a similar affection on the outside of the knee-joint, and that a cast of the case was in the museum of the Richmond Surgical Hospital. He had also met with enlargement of the bursa in the popliteal space, and had delineated it, in his recent work on "Chronic Rheumatic Arthritis."

CASE 2.—A strong young woman was admitted under his care into St. Patrick's Hospital, January 12, 1859, laboring under a painful affection of the left knee of three months' duration. She stated that she received a severe blow upon the inner side of the knee about three months before, and that she had suffered severe pain in that situation ever since, and on admission there was fixed pain at the inner edge of the head of the tibia, corresponding to the insertion of the sartorius muscle, most intense at the commencement of the spine of the tibia. It was greatly increased by walking or standing erect, and was relieved when the leg was semiflexed. Corresponding to the seat of the pain, there was a well-marked, flattened swelling, resembling a section of an orange; it was fluctuating, and admitted of alteration of shape according as pressure was modified. The fluid could not be displaced beyond the limits already pointed out. There was no alteration whatever in the shape of the knee-joint itself. The application of blisters, and rest in the recumbent posture, succeeded in dispersing the tumor.

PART III.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

(A) CONCERNING PREGNANCY AND PARTURITION.

ART. 144.—*Appearances of the yearly ripening of Ova in Women.*

By Dr. MATTEI.

(*Gaz. des Hôpitaux*, No 22, 1850, and *Medico-Chir. Review*, Oct. 1850.)

Dr. Mattei regards the theory of the monthly maturation of ova concurrently with menstruation as erroneous, and believes that for each ovary only one annual ripening takes place. The months of January, February, March and April are especially favorable for this maturation. The appearances of this condition come on at times very gently, at others very painfully. The general appearances are, alterations of the voice, sleeplessness, at times neuralgias, prostration, vomiting, frequently palpitation, cough, hoarseness, without material change in the breasts. As local symptoms there are, sensation of weight or pain in the abdomen, from the sacrum to the thighs, and especially pains in that side of the pelvis on which the lymphatic glands are swollen and tender; there is also heat and excitement of the external genitals. The menstruation is disturbed; it is seldom rendered more profuse, most frequently more scanty, coming on earlier, and attended with nausea. At times leucorrhœa, diarrhœa, dysuria, sympathetic symptoms in the breasts; the excitation of the ovarian region causes pains, nausea, even hysterical cramps; hemitorsele, peritonitis, and phlegmen may occur. According to the individual, these symptoms may last for four, twelve, or twenty-eight days, and disappear altogether, or pass into symptoms of pregnancy, or false conception. The interval between the ripening of the ova in the two ovaries is variable. The minimum observed by the author was four days, the maximum five months. Dr. Mattei further says that this yearly ripening mostly ceases at the same epoch as the germination of plants and the rut of animals.

ART. 145.—*New tests for the Kiæsteine of Pregnancy.*

By Dr. J. BRAXTON HICKS, Assist.-Physician-Accoucheur to Guy's Hospital.

(*Lancet*, Sept. 17, 1853.)

The time consumed by the usual method of obtaining kiæsteine, and the unpleasant odor arising from its decomposition, render it a desideratum to possess a test which shall hasten its appearance and increase the quantity deposited from the urino. Into the value of it as a sign of pregnancy, Dr. Hicks does not at present intend to enter; but as a readier means of ascertaining its existence will assist investigations on that point, he offers his experience on the action of rennet on urine containing the above-named substance. What the composition of this substance is, as it exists in newly-passed urine, has not been as yet ascertained. There can be scarcely any doubt that the action of the air alters it into a substance very similar to casein, if not identical with it, inasmuch as it is coagulable by rennet, and insoluble in cold acetic acid, and generally in hot. That the substance called by Dr. Stark 'gravoline' is another substance seems probable, and may be that which is precipitated out of some urine of pregnancy by a small quantity of acetic acid, though it is generally re-dissolved in from six to twenty hours; or it may be the same substance in varying degrees of alteration. The readiness with which this change takes

place, whatever it may be, varies very considerably in pregnant women, and that without any apparent cause. A few hours' exposure to or agitation with air is sufficient to deposit the altered substance; while in others, two days are required, and this is not altogether dependent on the period of pregnancy, for Dr. Hicks has found a person, only four months and a half advanced, yield copious deposit in three hours after passing; while another at the full term required within two or three days.

Now, as there is no amorphous deposit thrown down from urine previously clear, within two or three days, which is not easily dissolved by heat (lithates) or by dilute acetic acid (phosphates and carbonates), excepting from that of pregnant women, it is evidently not necessary to wait till the decomposition has gone on to form the white pellicle which ensues upon protracted exposure; but if a deposit takes place varying in color according to that of the urine (but naturally white), unchanged by the above-named tests, then we may safely conclude that the urine contains kiesteine.

This deposit varies from copious troubling to that of small flakes falling to the bottom, and probably results from the natural acid of the urine, or the formation of lactic acid in it, coagulating the newly altered kiesteine; and the time at which the troubling takes place varies also, probably, with the rapidity with which the change by the air goes on and the condition of acidity.

If, then, we add rennet to urine of pregnancy, we shall find that in nearly every case the deposit above alluded to appears at an earlier date than if it is not employed; in some cases, within an hour (this is uncommon); in others (especially if the urine be recently passed), in from twelve to twenty-four hours. In the majority of instances, the change produced by the above-named agent has been in advance of the usual method by about half the time, and the quantity of the deposit has been decidedly greater.

Now, the greasy looking pellicle which has always been waited for as a sure sign of kiesteine, consists of a small quantity of amorphous matter (kiesteine); occasionally a few fat globules, but not constant; numerous crystals of the triphosphate, amorphous carbonate, and phosphate of lime, which arrests the numerous so-called vibrations, thereby preventing their peculiar movements till released by the addition of acetic or other acid. All these are produced by the process of decomposition, and form, therefore, but a crude test, being also somewhat imitated by the decomposition of albuminous and diabetic urine.

Rennet, Dr. Hicks finds, has no action on healthy, diabetic, albuminous, or phosphate urine. A slight deposit sometimes takes place, looking something like mucus, but urine giving off but a slight precipitate should be held doubtful in respect of kiesteine.

If, after the deposit is well formed, we add to, say half an ounce of the turbid urine (taking the lower portions) a few drops of strong solution of ammonia, and boil for a minute or two, we shall find the deposit is formed into a semi-mucous mass, so that the urine becomes almost tremulous. When this occurs, it is, Dr. Hicks thinks, characteristic of kiesteine. It can be produced without boiling, but the change is slower and not so complete. If the deposit be scanty, the above appearance is not so well marked; but, by careful watching, it may be observed amongst the flakes which are formed.

This test for kiesteine can be employed equally well with or without the previous use of rennet. The quantity of phosphates thrown down by the ammonia may be known by adding gradually acetic acid, so as to slightly acidulate. What remains undissolved is the kiesteine.

In employing rennet the best method is to mix about two teaspoonfuls (as described below) with about three ounces of the urine, if it be recently passed; but if it has stood some time, and the kiesteine is about to be deposited, the author likes to pour it quietly in, so that it may fall to the bottom. The deposit is then clearly shown at the juncture of the two fluids.

Alkaline urine should be accurately neutralized by acetic acid, and should pus be present, it should be allowed to stand, and then be filtered. (However, the rennet semi-neutralizes pus, so that it is not of very great consequence.) This plan should be adopted in all cases where the urine is turbid, from phosphates, pus, mucus, or extraneous matter.

The chief advantages of the employment of rennet are—

- 1st. Saving of much time.
- 2d. Increase of the deposit.
- 3d. The deposits are nearly free from phosphates.
- 4th. It is nearly free from smell.

The rennet used is prepared in this way: Take the fourth stomach of a calf as soon as killed, and scour it well inside and out with salt, so as to remove the curd. Let it drain a few hours. Place it in a wide-mouthed jar, and sprinkle a handful of salt upon it. In a short time the juices will exude, and dissolve the salt. Take this and filter through bibulous paper; place it in a bottle, and use as required. That left in the jar will continue to yield a fluid for some time; otherwise some salt and a small quantity of warm water should be poured over it, and allowed to stand a day. Then filter the juice. The stomach may also be filled with salt and sewn up, or it can be stretched on a skin to dry. In the latter cases pour warm water upon it, allowing it to stand some hours, adding salt to help to preserve it. The more concentrated the juice is the better.

Rennet, already salted, may be obtained of almost any butcher.

ART. 146.—On the Sickness of Pregnancy.

By Dr. CHARLES E. BAGOT.

(*Dublin Medical Press*, Oct. 12, 1850.)

"In 1846," writes Dr. Bagot, "I had had under my care a woman laboring under that extreme form of sickness from pregnancy which placed life in the most imminent jeopardy. I had tried all the usual remedies suggested in such cases, and found them one after another to fail in producing any relief. Although there were no symptoms whatever which would make me suppose that any inflammation was either the proximate or remote cause of the sickness, I resolved to try the effects of mercury, and having had some experience of the powers of calomel in allaying other forms of vomiting, I fixed on the administration of this preparation, steadily persevering in its use until her gums showed appearances of salivation, which they did in a very short time. This treatment resulted in the best effects. Immediately after slight salivation took place, the vomiting, previously so persistent, at once ceased, food remained on the stomach, the patient rapidly recovered, and was in due time safely delivered of a full-grown infant.

"After a more than ordinary length of time, and about three years from my publication of her case, this woman again became pregnant, when she was once more seized with the same dangerous vomiting at the fourth month of gestation, and I was again obliged to resort to the calomel treatment before I could succeed in allaying the almost fatal form of sickness under which she was laboring. By the use of the same medicine she, however, was again brought through, but with this difference, comparing this present attack with the former one, that it was found necessary to prolong the salivation for some days before complete relief from her urgent symptoms was obtained, whereas, on the previous occasions, as I have mentioned, the vomiting subsided on the first appearance of mercurialization.

"I had a third opportunity of trying the calomel with the same patient, as during her next pregnancy, her life was again placed in imminent peril by a recurrence of the same urgent symptoms, the violence of the vomiting, and weakness produced by want of nourishment, exceeding, if possible, the state on the two previous occasions, at least such was the account which I received in this country, where I was at that time residing. A medical practitioner by whom she was attended, having heard of my success in producing relief by salivation, administered to her some medicine which had that effect, but I am not aware of the preparation which he used, and only know that his treatment was of no avail, the symptoms continuing with unabated violence. At this juncture I was written to, when I recommended that slight salivation should be kept up by means of small doses of calomel, given three times daily, and that with each dose she should have a draught containing fifteen drops of chloroform. This treatment was adopted under the direction of a medical gentleman of my ac-

quintance, and was attended with almost magical effect; after the administration of a few doses the vomiting ceased, light nutriment lay upon the stomach, she gradually gained flesh, became restored to health and strength, and at the full period of nine months was safely confined.

"Since that time (1854) this woman has not become pregnant, for which fact her age will account.

"I hope these brief remarks will suffice to call attention to this important subject, and that no man in the profession will again resort to the induction of premature labor without at least giving a fair trial to the treatment I have recommended. The illness of Mrs. P— was of the very worst form; her symptoms were so urgent I despaired of her existence being prolonged; her prostration of strength was excessive; her emaciation extreme; her pulse a small thread; she had no tenderness in the epigastrium; neither had she pain in the region of the womb, nor the least uneasiness on pressure over that organ; she had no febrile nor inflammatory symptoms, and yet the most complete relief followed the exhibition of the mercurial pushed to slight salivation, and this success, I sincerely trust, may induce others to follow the example, and fairly test my plan, although my experience is but the result of three trials, practised on the same patient."

ART. 147.—*Of the use of Chloroform in the diagnosis of Spurious Pregnancy*,
By Dr SIMPSON, Professor of Midwifery in the University of Cambridge.

(*Medical Times and Gazette*, Sept. 10, 1869.)

The following interesting remarks are from a clinical lecture on spurious pregnancy.

"Chloroform," says Dr. Simpson, "will generally, in any case of doubt, solve the difficulty completely, if only given deeply enough. When the patient is fairly put to sleep with chloroform, the tense abdominal muscles become perfectly relaxed, and on pressing on the abdomen, you will find that the walls will give way before your hand, and sink backwards, till you can feel the spinal column quite distinctly, and you then find the uterus to be of normal size. The phenomena presented by that phantom tumefaction of the abdomen while the patient is being anaesthetised are very singular. When the patient lies down on her back, and the abdomen is uncovered, it is seen to be projecting, swollen, rounded, and defined, like the abdomen of a pregnant woman, but generally, as I have said, with an appearance of unusual constriction around the lower edge of the ribs. No change occurs during the first stage of the administration of the anæsthetic, and until the period of excitement has passed over, the swelling continues, and the muscles remain rigid and tense as at first; but gradually, as that stage passes off, and the respiration begins to become sonorous, the muscles begin to be drawn in, and the abdomen slowly flattens, until it assumes its proper size, or even becomes depressed and relaxed, like the abdomen after delivery. So long as the patient remains in a deeply anæsthetic state, you can make the most complete and satisfactory examination of the state of the uterus, and, indeed, of all the abdominal organs; and you may have recourse to this expedient with perfect safety and success in doubtful cases of real pregnancy also. But when she comes out of her sleep again, in a case of spurious pregnancy, the muscles begin to arch up and to become tense as before, so that by the time the patient is fully awake the abdomen is as large and rounded as ever, and the necessary examination again becomes painful. For, as I have already hinted, the patient has sometimes in pseudocyesis a degree of tenderness in the abdomen that renders her very intolerant even of a slight amount of pressure. The patient having wakened up and found the apparent tumor still present, fails herself to be convinced of the fact that it had, for a time, been dispelled. But you may, perhaps, convince some of her friends of the absence of any real tumor, and their corroborative assertion may go far to bring her to a sound and proper belief afterwards. I had once a poor peasant's wife, from Berwickshire, with spurious pregnancy, who bothered all her friends, and kept them in a continued state of anxiety and trouble, because she was always going into labor, until she had arrived at a period which corresponded

in her reckoning with the thirteenth month of utero-gestation. She was one of those persons whom it was utterly impossible to convince by any argument of the true nature of her affection; and her great confidence in the reality of her pregnancy had imposed on her friends, and led them for long to share in her kind of monomania,—for, after all, the mind is really in such a morbid state in some of these cases as to deserve the name of monomania. Having put her under the influence of chloroform, I called her sister into the room, and made her feel the spine through the collapsed abdominal walls, and succeeded thus in demonstrating to her entire satisfaction that there was no child in her sister's abdomen. But the patient waking up, and finding no change in her condition and form, might have remained unshaken in her belief, and, indeed, was still for stoutly affirming that she was pregnant, when her sister shut her up with 'Haud your tongue, woman! You've naething in your wame, for I felt your backbone myself with my ain hand.' I have no very satisfactory explanation to offer you of the nature of this very strange abdominal swelling, and of the peculiar phenomena observed in it, when the patient is in a state of anaesthesia. Some years ago I made a number of observations on some of our hospital patients, to try and solve the difficulty. Some medical friends who had been told of the remarkable effect of the chloroform, were quite certain that the swelling must have been due to the distension of the bowels with gas, which, they averred, must have escaped unobserved when the sphincter was relaxed during the deep sleep induced by the drug. But that this was not the proper explanation we easily proved by introducing a tube into the rectum, and putting the free end of it under water, and then finding that no bubble of air escaped during the anaesthetic subsidence of the swelling. I believe that the phenomenon must probably depend on some affection of the diaphragm, which is thrown into a state of contraction, and pushes the bowels downwards into the abdominal cavity. I am the more convinced that this is the true explanation, from the fact that you can sometimes make the abdominal swelling disappear for a second or two, by getting the patient to take a deep inspiration, and then suddenly breathe out again. But whatever be the explanation, the value of anaesthesia as an adjuvant in aiding and establishing a correct diagnosis of such cases cannot be overrated."

ART. 148.—*On the relative advantages of Hospital and Home Obstetric Practice.* By Dr. ROBERT BARNES, Physician to the Royal Maternity Charity, &c.

(*Dublin Quarterly Journal of Medicine*, Aug. 1859.)

The following tables and remarks are from a paper on the Clinical History of the Eastern Division of the Royal Maternity Charity, during the year ending September 30th, 1858. The patients of this Charity, it is to be understood, are all attended at their own homes by midwives, acting under the superintendence of physicians and certain medical assistants. The eastern division of the institution, which is about two-thirds of the whole, is the largest obstetric charity in London. It would certainly seem that the experience of an institution of this kind, working over a wide district at the homes of the patients, must give a more accurate representation of the ordinary parturient history of the community than can be drawn from the records of lying-in hospitals, where almost all things that surround the patient are exceptional. The tables are these:

TABLE I.—*Illustrating the proportion of Still-Births to Total Births.**

	Total Labors.	No. of Dead- born.	Proportion of Dead- born.	Dead partid
Royal Maternity Charity, London, 1856, 1857-8	10,561	308	1 in 34	
Maternity and Dispensary, Edinburgh, 1858	883	62	1 in 14	
Lying-in Hospital, Dublin, 1757 to 1847	156,100	9291	1 in 17	
Ditto 1847 to 1854	13,748	968	1 in 14	487
Birmingham Lying-in Hospital, 1858	1,049	59	1 in 18	

TABLE II.—*Showing proportion of various Operations, &c., in Dublin Lying-in Hospital and Royal Maternity Charity.*

	Craniotomy.	Forceps.	Turning	Placenta Prævia.
Dublin Hospital, 1847 to 1854 {	130, or 1 in 106	200, or 1 in 69	66, or 1 in 208	24, or 1 in 571
Royal Maternity Charity, East- ern Division, Dr. Barnes {	4, or 1 in 600	6, or 1 in 445	7, or 1 in 316	9, or 1 in 268

TABLE III.—*Illustrating rate of Mortality in Child-Birth, distinguishing Puerperal Fever, in Hospital and Home Practice.*

	Total Deli- veries.	Total Deaths.	Rate of Mortality.	Deaths from Puerperal Fever.	Rate of Mortality from Puer- peral Fever.
All London, 1868	87734†	430	1 in 204	165	1 in 502
Royal Maternity Charity, Eastern Division, 1857, 1858, Dr. Barnes	2418	7	1 in 345	4	1 in 600
All Edinburgh, 1858	5186†	28	1 in 183	16	1 in 321
Hospital, Edinburgh	277	3	1 in 92	Not specified	
Lying-in Hospital, Dub- lin, from 1847 to 1854	13748	163	1 in 84	70	1 in 197
Lying-in Hospitals, Lon- don, 1858	.....	11			

Commenting upon these tables, Dr. Barnes says:

"In table I, I have brought together illustrations of the proportion of dead-born to live-born children. In the Royal Maternity Charity one child out of every thirty-four is still-born; in the Maternity and Dispensary at Edinburgh, one in fourteen; in the Birmingham Lying-in Hospital, including in and out patients, one in eighteen; in the Dublin Lying-in Hospital, during the first ninety years of the existence of this celebrated Institution, one in seventeen; and during the seven years, from 1847 to 1854, the proportion was one in fourteen.

"1. Applying these facts to the solution of the question of the unknown number of dead-born children in London, we find, taking the Royal Maternity experience, that since about three per cent. of the total births are dead-born, we must multiply the registered births in London by 1.03, which would give

* The figures relating to the Edinburgh Institution were supplied by Dr. Matthews Duncan, those from Birmingham by Dr. Elkington.

† Deduction from registered births of 1 per cent. made for twin births.

91,278, from which, if we deduct one per cent. for twin-births, the number of deliveries would be 90,365. This is still liable to the fallacy that an unknown number of living children escape registration.

"2. From this estimate it appears that 2658 still-births (no account taken of abortions) take place annually in London. Of these 2658 deliveries the public has no information; that is, we know nothing of the circumstances under which 2658 women brought forth; it is not known how many were unassisted by competent skill; it is not known how many of the children thus ignored perished from causes connected with the act of delivery; it must, indeed, remain a matter of conjecture whether this number does not include many infants who perished from neglect, or some criminal default, within a few hours of birth. The medical statistician is left to regret the loss of many facts that might prove of signal value as indications in preventive medicine; the statesman must contemplate with alarm an uncertain amount of social misfortune, of depravity, and of crime, that lies enveloped in mystery, and therefore beyond relief or restraint.

"I refrain from pursuing this speculation through its applications to Edinburgh and Dublin, or the kingdom at large. In Ireland there is, unfortunately, at present, no registration. I will merely refer to the great difference between the proportion of dead to live-born children observed in the Dublin Hospital and in London. The wide distance between one in thirty-four in London, and one in fourteen in Dublin, may raise a doubt as to the correctness of the London returns; of the correctness of the Dublin returns there can be none. But there is a remarkable circumstance, which the admirable perfection of the records of the Dublin Hospital supplies, that throws light upon the discrepancy. A record is kept of the children born dead and *putrid*. Now the proportion of putrid children alone is one in thirty, or greater than the total dead-born in London. There must, then, be causes in operation in Dublin which do not act in the practice of the Royal Maternity Charity. Another fact that deserves attention is, that there appears to be a relation between the proportion of dead-born children, and the proportion of obstetric operations and maternal mortality. This latter also is far higher in Dublin than in London.

"The conclusion indicated by the foregoing reflections, and others, that will suggest themselves is, that an *effective scheme of registration must embrace every delivery*. In the case of the fruit being still-born, it is desirable to specify as well as can be done, the ascertained or probable cause of death. The only approach to a collection reliable upon this head, with which I am acquainted, was commenced by Dr. Collins, and continued under Dr. Shekleton, at the Dublin Lying-in Hospital. I have no hesitation in declaring my conviction that the extension of registration to still-births is imperatively required as a means of protection for infant and even maternal life. Of its importance as an element in the construction of medical statistical comparisons, every one accustomed to similar researches may judge. An objection, not without weight, lies in the difficulty of drawing a line between abortion and birth at a period when the fruit is visible. But I cannot now discuss objections or difficulties.

"Returning to obstetrics proper, I refer to Table II., in which the proportions of various operations in the Dublin Hospital and in the Royal Maternity Charity are stated. During the seven years, from 1847 to 1854 in Dublin, craniotomy was performed once in every 106 labors; the forceps were used in Dublin once in 269 cases; in London, once in 400; and turning was performed in Dublin once in 208 cases; in London, once in 345. Some reflections, bearing upon these differences, are contained in the observations that follow upon the next table.

"The table illustrating the rate of mortality in child-birth, distinguishing deaths from puerperal fever, must be read with some reservation. Inquiries made with reference to this report increase the distrust which a peculiar experience had already raised in my mind as to the trustworthiness of the public statistical returns. In London, owing to the vastness of the community of which the medical practitioner forms an item, instances of individual mishap in practice reflect less severely upon him than they are apt to do in more limited circles. The mortality returns of London are, moreover, subjected weekly to

the scrutiny of the medical officers of health. Coroners' inquests are also freely held in cases of death, the cause of which is not satisfactorily attested. The Registrar-General publishes a weekly summary of the London mortality returns, which is scanned with interest by many persons. These circumstances concur to invest the London mortality returns with an authority which I fear is not merited generally. The fallacy of large generalizations, unchecked by individual experience, may be seen from the following example.—It is stated in the Registrar-General's Report for 1856, that the mortality in child-birth in England and Wales, in 1847 was one in 16, and that it had fallen to one in 227 in 1856. Now, having applied to Dr. Elkington for the puerperal statistics of Birmingham, I learn that the Registrar of that town says that "no one ever specifies the deaths in child-bed or from puerperal fever." May it not be that in 1847 there was less repugnance in giving correct certificates than in 1856? Certain it is, that here, as in every other medical inquiry, we must fall back upon individual observation.

"The facts tabulated cannot fail to provoke the important inquiry as to the relative advantages of hospital and home obstetric institutions as to mortality in child-birth. When we observe that in hospital practice one woman in ninety-two dies in child-bed in Edinburgh, one in eighty-four in Dublin, whilst in the Royal Maternity Charity the deaths were only one in 345, the causes of this difference must appear deserving of investigation. I at once discard all idea of difference of skill. The indications for operations are much the same in London and Dublin; at least they are so for me. The following causes appear to be the most efficient:—

"1. Puerperal fever is undoubtedly more destructive wherever lying-in women are congregated. By congregation, the fœmites given off acquire concentration, and probably tend to that specific fermentation which produces the poison so fatal when absorbed into the circulation. In addition to the greater risk of aerial infection, there is the increased danger in hospitals of conveying poison by touch, and by articles of clothing. The state of insulation of every puerpera in her own dwelling guards her from the most active sources of infection. The difference in London is striking. Whilst the 2418 home-patients gave only seven deaths from all causes, no less than eleven women died in the hospitals, most of them probably from fever, although the total deliveries were far less in number.

"2. The late period of the labor, and comparatively helpless condition of the patients when brought into hospital, contributes largely to the mortality. In home practice, we have the advantage of watching the patient from the commencement of labor; her condition is not imperilled by being transported at a critical period to a distance. The records of the Dublin Hospital show that many women are brought in moribund, and many others too late for the application of the most effective means of treatment.

"3. The deserved reputation of the Dublin Lying-in Hospital attracts many of the most formidable obstetric cases, so that the practice of such an institution includes a higher proportion of dangerous cases than would occur in the general population. I must observe that, to a certain extent, the Royal Maternity Charity is entitled to the like consideration. The knowledge that the physician will be called in, in the event of difficulty, induces women who have previously had bad labors to apply for tickets. This circumstance, then, I do not think will account for the far greater proportion of operation cases in the Dublin Hospital. Thus, during Dr. Shekelton's seven years' mastership, one woman in forty-two was delivered by forceps or craniotomy, whilst, in my public practice, only one woman in 420 was thus delivered. This excess of ten to one must have other causes occurring. Is it that distorsion is more common in Ireland? This and other questions suggested, increase the regret that a system of registration, like that in operation in England, is not yet established in Ireland. We cannot know how far the experience of the Dublin Hospital is exceptional or typical of the parturient history of Ireland, until we have a general statistical return.

"4. I may be excused for adverting to a doubt which has been often expressed to me, whether the records of the Royal Maternity Charity are so accu-

ately kept as to deserve reliance. I believe the system followed is well calculated to insure completeness. Every month each midwife presents her case-book to the secretary: in this, entry is made of the name, residence, date of delivery, nature of presentation, fate of mother and child of every case attended by her, and also of every case in which the assistance of the physician has been called in. She is bound to visit every patient at least three times after delivery, and to enter the dates of her visits. In my division the midwives' reports are checked by my own case-book, and by returns made to me by my assistants. It must further be remembered, that any midwife neglecting to call assistance in a serious case, runs the imminent—almost certain—risk of a coroner's inquest; and that the Registration system would surely bring to light any case of puerperal death. As far as they go, I believe no serious errors exist in the statistics I have given. It should be mentioned that the Royal Maternity Charity gives relief to married women only.

"The experience of the Dublin Lying-in Hospital, where it is certain that every important circumstance is faithfully recorded, is therefore entitled to a degree of confidence to which no public vital statistics can lay claim.

"These reflections again lead me to the conclusion that no thoroughly reliable public vital statistics will ever be collected until it becomes imperative upon every person assisting at a birth, whether the fruit be living or dead, to see that the birth is registered.

"I am not competent to determine how far the system of home delivery is capable of being extended in Dublin. It is possible that any curtailment of the hospital succor would be attended by an increase of suffering greater than that which might be abrogated by succor at the homes of the poor. But it is impossible to read the histories of many of the cases brought to the hospital, and not to perceive that lives have been frequently imperilled and lost, because the labors were not concluded where they had begun. In England, I believe, the extension of hospital obstetric practice is, on every ground, to be deprecated. Independently of the great mortality of lying-in hospitals, there are motives of the highest, moral, social, and even national importance, that should induce us resolutely to withstand any approach to the system in operation in Continental cities."

ART. 149.—*Retraction of Labor.* By Dr. CHARLIE.

(*American Quarterly Journal of Med.*, July, 1852.)

Dr. Charlien directs attention to the fact that, at any period of pregnancy, but particularly during the latter months, labor may commence and proceed regularly, so far as that the os uteri is opened up so considerably as to put the projecting bag of membranes on the stretch, and yet not only does complete retraction occur, but the retrocession is so complete, that the os uteri closes again till some weeks after, when the labor begins afresh, and proceeds uninterrupted to its close. In evidence of this he cites four cases: The first occurred in the Obstetrical Clinique at Paris. A woman, eight months pregnant, was seized with regular pains; the os uteri opened to the size of a five-franc piece and was soft; towards evening the water came away; during the night the pains continued regularly, but at 4 A. M. ceased entirely; the os uteri gradually closed, and by the following evening was quite shut. Twenty-one days after the labor set in anew, and proceeded regularly to its termination. In the second case the birth took place thirty-two days, in the third thirty-five days, and in the fourth twenty-two days, after the first occurrences of labor.

Professor Strong relates a remarkable instance of this retrogression of labor in the case of a woman brought to his clinique, with true labor pains, the os uteri dilated to about the size of a groschen, with distinct tension of the projecting bag of membranes, and considerable hemorrhage from a lateral insertion of the placenta; to subdue this, injections of cold water, with the subsequent addition of muriate of iron, were successfully employed, and the patient strengthened by cordials; but the pains then ceased entirely, the os uteri closed, and the birth did not take place till eight days after, when it occurred naturally. Such observations encourage the attempts to suspend premature labor.

ART. 150.—*Relative frequency of various Presentations of the Fetus.*

By Dr. WILLIAM C. ROGERS.

(Amcr. Med. Monthly, May, 1859.)

Dr. Rogers tells us that he gathered the following figures from the standard and periodical literature of the profession and from his professional friends and correspondents:

Whole number of presentations	88,342
Head, (including "face to pubis," &c.)	85,210
Breech	1754
Feet and knees	446
Funis, (the accompanying presentation not given)	219
Arm	83
" and head	38
" " and funis	9
Head and funis	57
Placenta	25
Face	299
Shoulder	69
Transverse	120
Sacrum	1
Back	6
Belly	6
Forehead	1

ART. 151.—*Case of Twins with single Placenta.* By Dr. J. A. GRANT, Physician to General-Protestant Hospital, Ottawa, C. W.

(Montreal Monthly Journal, March, 1859.)

CASE.—January 25th 1859, I was called upon about 2 a.m., to visit Mrs. B—, æt. 24 years, presenting all the external characteristics of good health and in labor with her first child. Shortly after arrival I was informed that an old midwife had been in attendance for upwards of fifteen hours. Upon examination I found the os uteri fully dilated, membranes ruptured, head advanced to the inferior strait of pelvis and in the first position. According to the ascertained history of the case, strong bearing down pains had been existing for several hours and without any visible alteration. After remaining about four hours by the bed-side, during which period the pains still continued with no ordinary degree of severity, I was obliged to assist nature and deliver with the forceps, which was accomplished without much difficulty, the bowels being previously regulated and the contents of the bladder removed. The smallness of the child, non-reduction of the abdominal enlargement and the detection of fresh membranes, established the existence of twin pregnancy. Finding difficulty in the removal of placenta I resolved upon leaving it until the birth of the second child. After an interval of rest of about fifteen minutes duration, the pains returned and the membranes protruding were ruptured. The head readily descended to the outlet beyond which, without instrumental interference, there was not much prospect of delivery. An interval of half an hour from the birth of first child, having elapsed, the forceps were again applied and the second child removed, thus terminating the delivery of both, alive and well.

More than ordinary rigidity of the perineum, associated with considerable diminution of the capacity of pelvis from tumefaction of its linings, induced by too frequent examination, appeared to be the most apparent causes of detention, towards the exit of the child's head. The placenta which presented the following peculiarities was removed with ease. Shape, that of a perfect oval, nine inches in length and about an inch in thickness. *Outer or uterine surface*, slightly convex, presenting the usual irregular lobes with intervening sulci. The laminated albuminous tissue, (*decidua serotina*) which covers over these parts being removed, caused this surface to present no striking peculiarities, as to these sulci being alike throughout its entirety. *Inner or fetal surface* slightly concave and possessing its proper glistening appearance, being covered

by the chorion and amnion, these membranes uniting midway between the insertion of either cord. The membranes at their junction were so perfectly united, as not to admit of separation without being lacerated. The cords presented no visible peculiarities, either as to their anatomical composition or placental insertion, excepting that they were equi-distant from each other and from the circumference longitudinally.

ART. 152.—A simple instrument for inflating the Lungs of Still-born Infants.

By Dr. J. G. Wilson, Physician-Accoucher to the Glasgow Lying-in Hospital, &c.

(Pamphlet, Glasgow, 1859.)

This instrument essentially consists of a vulcanised india-rubber ball, about the size of an orange, to which is attached a German-silver tube, about six inches long, and gently curved towards its free extremity. The tube is closed at the extreme end, but has two openings or eyes, like a female catheter, a short distance from the point. On compressing the ball, the contained air rushes along the tube and through the openings above mentioned, and on removing the pressure the ball rapidly expands, and becomes instantly refilled with air, which may again be evacuated as before. On introducing the tube into the larynx, and acting in this manner, it is obvious that, for the most part, the same air would be used over and over again, which would be a manifest disadvantage and a decided objection. This, however, may be easily remedied, by making another opening in the tube, about an inch from its attachment to the ball, for the free ingress of fresh, cool, dry air. During the compression of the ball, the left thumb will easily cover the opening, which must, however, be removed to admit the entrance of pure air during the subsequent expansion of the ball. This opening being somewhat larger than the other two, and being much nearer the ball, readily permits the entrance of fresh air. The instrument can be readily introduced in the following manner: After throwing back the child's head a little, pass the left forefinger over upon the root of the tongue, into the rima glottidis, then with the instrument in the right hand, slide the tube along the surface of the finger, (which at once depresses the tongue and serves as a guide,) and on reaching the rima, insert the tube at the moment you withdraw the finger. If this plan of operating be attended to, there is little fear of introducing the tube into the pharynx instead of into the larynx. It is not so necessary, as when other modes of inflation are used, to push back or depress the larynx in order to prevent the transmission of the air through the oesophagus. The insufflation of the lungs must be gently and slowly performed, so as to simulate as nearly as possible the normal respiratory process. After each inflation, the chest must be slightly compressed, in order to facilitate the expulsion of air from the lungs. The inflation of the lungs, alternated with pressure on the chest, should be steadily persevered in until respiration is regularly established, and ought never to be relinquished as hopeless whilst the least fluttering or quivering motion over the cardiac region is perceptible.

ART. 153.—Extra-uterine Pregnancy, in which the Fœtus made its way into the Urinary Bladder. By Dr. C. PETERSEN, of Ringkjøbing.

(Bibliothek for Læger; and Dublin Med. Press, Aug. 10, 1859.)

This case was brought before the Royal Medical Society of Stockholm, by Professor Levy. The translator is Dr. W. D. Moore. Dr. Levy prefixes the case by a reference to similar cases, and remarks that *cesal pregnancy*—as it is called by many systematic writers—can of course in the present day be understood only as a form of extra-uterine pregnancy, in which, in consequence first of an adhesive, and subsequently of an ulcerative inflammatory process, a close adhesion, and afterwards a direct communication, are produced between the extra-uterine sac and the urinary bladder.

CASE.—Mar. II.—, æt. 54, of a slender frame of body and rather delicate health, had until her 36th year been tolerably strong, and had given birth to three children. In her 37th year she became for the fourth time pregnant, the catamenia were arrested, but when she was between the second and third

month, she got suddenly, without being able to account for it, a violent attack of hemorrhage from the genitals, and thought she had aborted, especially as she felt pains resembling those of labor. The hemorrhage was particularly difficult to check; it returned in a minor degree almost daily, chiefly in the afternoon, and weakened her much. No medical advice was sought. At the end of a month the hemorrhage entirely stopped, but the menses did not return, she became larger and larger, her breasts were highly developed, and when half the ordinary period of pregnancy had elapsed, reckoning from the time she first considered herself *enroute*, she thought she felt movements, which subsequently often returned. Her health was, on the whole, very good, and she did not feel the least difference between her then state and her earlier pregnancies; no abnormality could be discovered in the abdomen, the latter being uniformly and regularly distended, without any tenderness, her breasts continued milk, and the only annoyance she experienced was caused by considerable oedema of the feet. When the time arrived at which, according to her computation, she ought to have been confined, she suddenly felt a movement in the abdomen, as if the fetus turned, and she got a violent rigor, which was repeated two or three times, and afterwards ceased to recur. She considered that the child was dead. A couple of days after, sudden and severe pains set in, which, however, soon ceased, and were followed by violent hemorrhage, during which the pains returned in a slight degree, though the labor made no progress, and finally stopped altogether. The midwife said she felt something of the shape and size of a child's head, though she did not think it was so; but what she thought, or rather said she thought, the patient could not state. Neither on this occasion was any physician called in. The patient in vain expected that the throes would return: they were not felt again, but in their stead considerable pains set in in the lowest part of the abdomen, particularly in the left side, where she felt a large globular tumor, which soon transferred itself, together with the pains, to the right side, which it again forsake to occupy the middle, directly over the symphysis pubis, where it became stationary. Notwithstanding all this, the woman's health was very tolerable, the pains gradually diminished, although the tumor remained unaltered, her strength improved, and in about a month she was so well that she was able to get up and attend to her house work; the only inconvenience she felt was in stooping, but even this inconvenience was after a time much lessened; there was no impediment to the action of the bowels or bladder. Some months subsequently she was even able to undertake a considerable journey, about which she consulted a physician, who comforted her with the idea that she would in time recover, and that the tumor would disappear. In this hope the patient made herself easy, and fifteen years now passed away (until the spring of 1854), during which she was very well. She attended to her daily occupations, menstruation was restored after the lapse of a year, and continued regular, until it stopped at the usual period for the change of life. The abdomen remained prominent for about five years, but afterwards gradually collapsed, the tumor over the symphysis became by degrees smaller and harder, the appetite and strength were good, the action of the bowels was a little torpid, the urine was voided without difficulty, though occasionally it was passed more frequently in the day than it had formerly been, and the oedema of the legs disappeared.

Such is the report of the patient's earlier condition. In May, 1854, she fell ill: she felt much oppressed, had a sensation of weight in the pit of the stomach, headache, her bowels were torpid and acted with difficulty, her appetite was bad; nevertheless, these symptoms soon disappeared simultaneously with the occurrence of pains in the pubic region. The latter she described as particularly violent, rending and cutting, as if the abdomen were being torn asunder; the remissions were very short, and the pains were accompanied with efforts to pass water, during which the pains themselves were increased. The urine presented no abnormality, either in quantity, appearance, or smell. A physician who was called in ordered some drops, and also the injection of powerful ointments over the symphysis pubis, which remedies were used without any apparent benefit; but by degrees the patient became so accustomed

to bear the pains, which had, perhaps, also somewhat diminished, that she could sit and get up several times in the day. Towards Christmas it happened that she was better than she had been for a long time, but this was only of short duration.

At the end of December she was suddenly surprised to observe a change in her urine. It was now passed more frequently, in small quantities, but without any particular increase of the pains; its appearance was turbid and milky, it was thicker, had a nauseous, penetrating odor, and on standing deposited a dense precipitate, resembling mucus. The patient's general health was severely affected, except that she was obliged to lie more in bed. By degrees the urine changed its appearance, it seemed now to resemble matter, became thicker, produced more straining, and during such straining she observed, for the first time, that something of an angular shape was firmly fixed in the outer opening of the urethra. Without much difficulty she got it out, and immediately recognized it to be a spicula of bone. From this moment commenced the patient's peculiar sufferings, which gradually increased until her death; her existence was henceforward a series of the most horrible tortures, such as certainly but few human beings have felt the equal of, and assuredly only few physicians have witnessed, and my lot was aggravated by the feeling how helpless art was in such a case. In April, 1855, I saw the patient for the first time, up to which period two or three pieces of bone had been passed. She was very thin and pale, with a hectic flush on her cheeks, but still was lively in manner and address, and without the least effort she told me the whole history of her case with great fullness and many repetitions: indeed she occasionally even intermingled joking remarks with her description. Her appetite was unimpaired, particularly for solid food; the bowels were torpid, and she was obliged from time to time to aid them with medicine; the abdomen was much collapsed, and was tender to the touch, especially over the symphysis pubis, where a hard tumor was distinctly felt, but the considerable amount of tenderness prevented me from examining its size, form and mobility as accurately as might be wished. As vaginal exploration also was extremely painful, neither did it lead to more information about the tumor or its relations to the other pelvic organs; and catheterization or exploration per anum the patient would not permit. With so imperfect an examination, it was not possible to form a more definite diagnosis than that there was an extra-uterine fetus, which was now making its way outwards; but where the fetus lay continued doubtful. There could be no hesitation whatever as to the unfavorable nature of the prognosis, but still I did not expect that the patient should lie an entire year before death would terminate her sufferings. I prescribed narcotics, both internally during the more severe paroxysms, and externally as stimulations to the genitals, and a camphor emulsion; and from that time I did not see the patient until I was called on the 1st of February, 1856, to her daughter in this town, and to my great surprise found that the mother had come here to place herself under my care. In a dreadful snow-storm she had traveled on an open vehicle seven miles,* in blankets, to be sure, but the desire to pass water constantly obliged her to uncover herself. Nevertheless, the next few days she felt unusually well. She now told me that shortly after I had been with her, she had observed a discharge of blood from the bowel, which had, however, soon stopped, and did not return. She had herself suspected that something had given way internally, and it was clear to me that an opening had formed between the rectum and the tumor, although the patient had never remarked that anything had been passed by that way, notwithstanding that up to that period about fifteen larger and several smaller portions of bone had been voided, all of which she thought had passed through the urethra. In other respects her state had been about the same as when I had before seen her. From the month of February I was almost daily witness of her sufferings, which gradually increased. A few days after her arrival she began to perceive the existence of the rectal fistula; it produced forcing both before and behind, at one time simultaneously, on other occasions at different times; when she thought she wanted to urinate, a few drops would come with

* Rather more than thirty-two English miles.—TRANSLATOR.

fearful suffering, while a quantity of mucus would be squeezed out *per anum*, and when she felt a desire to go to stool, it appeared as if the passage was obstructed, and mucus then often passed from the urethra. The urine was scanty, had a penetrating fetid odor, was purulent, and filled with a mass of small bodies, which were found to be disintegrated bony substance. She was constantly obliged to use aperients, at first of a milder, and afterwards of a more powerful nature, for she ate much, and with appetite. When the diene, as she called it, passed from her, she felt tolerably well, but when the discharge was arrested for a day she got headache, cardiac oppression, and nausea. She was usually cheerful, and bore her sufferings with singular patience, and helped herself almost to the period of her death. Portions of bone of various sizes passed from her nearly every day (I was once obliged to remove a large piece from the urethra, where it had become impacted), and she thought herself fortunate when she did not require to have the basin more than ten times in the twenty-four hours. Latterly she had no rest by day or night, the desire was incessant, and she often required the basin five or six times in the hour. On one or two occasions the pain drove her out of bed, and she was found crouched in a corner of the room. She endeavored to lie on a basin made for the purpose, but it was too hard, and latterly she passed everything under her in the bed. Completely worn out with torture and want of sleep, she died on the morning of the 29th of May.

As she was an intelligent and educated woman, and had herself stated that she had no objection to allow her body to be examined, as she considered her disease to be very rare; and, as her relatives gave permission, which is very unusual in this part of the country, my colleague, Dr. Blicher, and I, performed the post-mortem examination at two o'clock on the 30th.

We opened only the abdomen with an oval incision. There was no trace of peritonitis. On taking away the intestines, we came immediately upon a hard tumor, covered with a serous membrane, uneven to the touch, lying firmly on the vertebral column, and closely adherent to the rectum: it was as large as the head of a child, lay immediately behind the symphysis pubis, and its contents were evidently pieces of bone of various sizes. Over its lower part ran a few filaments, which afterwards appeared to be the right Fallopian tube: the uterus, which lay pushed to the left, was of about the normal size. We removed with great care the whole tumor, together with the uterus and the parts belonging to it, and a large portion of the rectum both above and below the fistula, which is sent herewith for further examination.

The more accurate examination of the tumor so carefully taken out, with the soft parts belonging to it, was, through the kindness of the operators, entrusted to me, and the result of the investigation, in which I was assisted by Candidate Kral, was as follows:

The extra-uterine sac, in which the principal portion of the bare foetal bones were found, lay at the right side between the uterus and the rectum. It had anteriorly a large, tolerably smooth-edged, and, as it were, cicatrized opening into the upper part of the posterior wall of the bladder, and posteriorly a much smaller, roundish, uneven, and ulcerated opening into the upper part of the anterior wall of the rectum: both the urinary bladder and the rectum were, at a little distance from the openings, firmly adherent to the sac. A long, fissure-like opening, which was found between the upper part of the bladder and the uterus, had unmistakeably been made in performing the dissection. The urinary bladder itself, which we opened by a longitudinal incision from the not particularly distended urethra, appeared to be quite filled with bones of various sizes, chiefly belonging to the lower extremities, although there were also several derived from the cranium and the trunk; all the parts of the long bones, which lay down in the bladder, were strongly incrustated. The walls of the bladder were everywhere much thickened, its mucous membrane was very uneven, turgid, of a greyish color, and was almost throughout studded with a granular calcareous deposition. The ureters were normal, except that the right lay curved along the posterior wall of the sac. The uterus, but little larger than usual, was, with the upper part of the vagina, pressed slightly over towards the left side. The right Fallopian tube was considerably length-

ened, and its ligament ran in a curve round and behind the sac nearly to the rectum, where it was seen to terminate in a cul-de-sac, inseparably connected to the sac, and but little distended. The right ovary was recognized in an atrophied state in the wall of the sac. The left tube was found to terminate in a closed dilatation, like an oblong bladder, capable of being inflated; it was attached to the ovary on the same side, and was somewhat injured in the preparation; a single fimbria, with an adherent little serous sac, was seen in the neighborhood, separated from it.

**ART. 154.—*Exomphalos, in which the Gravid Uterus formed the hernial mass.*
By Dr. MURRAY.**

(*Proc. of the Obstetr. Society of London, April 6, 1839.*)

CASE.—This case, which Dr. Murray believes to be the first on record, possesses features of great interest and importance. The patient was a woman, æt. 30, the mother of three children, and had been from infancy affected with a small umbilical hernia, which had always been easily reduced. When in the eighth month of gestation she found one morning in rising suddenly from the recumbent position, that a large tumor had forced itself through the navel. This protrusion proved to be nothing less than two thirds of the impregnated uterus, the fetus being distinctly recognized by palpitation. There was no rupture of the linea alba. Reduction was at once effected by means of gentle and careful manipulation, and the organ was happily kept *in situ* until the end of gestation, when a live female child was born. Mr. Murray quotes two or three cases from Boivin and Burns, which were somewhat analogous, but differed from the present case, inasmuch as the central tendinous cord had in them always yielded or divided; and he concludes by observing that the fact of the uterus being subjected to some amount of handling at this late period of gestation, without producing labor, was interesting.

**ART. 155.—*On the Hydatidiform or Vesicular Mole.*
By Dr. GRAILLY HEWITT, Physician to the British Lying-in Hospital.**

(*Lancet, Oct. 15, 1850.*)

Cruveilhier was the first to demonstrate conclusively the non-hydatid character of those bodies discharged from the uterus in cases of so-called hydatid pregnancy, and this view of the case has been established by many observations subsequently made. Many essential points in reference to the nature and mode of origin of the hydatidiform or vesicular mole remain, however, still *sub judice*. In the present paper it is attempted to reduce the series of facts already on record into something like a system, and to offer a solution of certain questions not yet satisfactorily or clearly answered.

The author describes the particulars of a case in which a specimen of the hydatidiform mole was expelled from the uterus seven months after the birth of a first child, and during the process of lactation. The patient did not suspect her pregnant condition, but for about six weeks the milk had increased in quantity, and fullness of the lower part of the abdomen and constipation had been noticed. The ovum, expelled entire, was apparently about two months old, and, on examination, offered a most perfect and interesting specimen of commencing hydatidiform degeneration of the ovum; the circumstance that the whole came away together afforded an opportunity of examining the parts as they had lain in the uterine cavity; the decidua uterina only being very slightly torn. On cutting vertically through the whole mass, the following appearances were met with: The amniotic cavity was empty; no embryo discoverable; the chorion and amnion membranes were adherent: about half of the chorion villi (the whole of those corresponding with the decidua serotina) presented the hydatidiform change; the remainder were covered by the decidua reflexa, shriveled and small. The chorion villi proceeded from the chorion membrane, in their passage towards the decidua serotina becoming enlarged at intervals into rounded bladder-like bodies, one sixteenth to one sixth of an inch in diameter. Microscopic examination showed these vesicular bodies to pos-

seen the same structure as that of normal chorion villi, but the cells on the surface were wider apart, and the villi distended by a serous fluid, giving rise to the enlargements. The appearances observed did not differ materially from those described by Cruveilhier, Mettenheimer, Gierse, Wedl, and others.

The point respecting which opinions have been divided is—What is the nature and cause of the change in the chorion villi, which results in the production of these hydatidiform bodies? Mettenheimer, followed by Paget, declares them to be cysts, while Gierse considers that the change consists in hypertrophy of the natural structures of the chorion villi with secondary coeloma. The "cyst" view the author dissents from altogether, and considers it positively disproved by observation of the specimen and the drawings of the same produced, and by comparison of the altered villi with normal villi at about the same period of development. From this it would appear that in the normal villi and in the altered ones we have precisely the same structures; it is not, then, necessary to have recourse to a cyst theory to account for the appearances. The cells on the surface of the villi are seen alike in the two cases; the vesicular enlargements evidently do not originate in them, and Gierse's opinion as to the essential anatomical character of the change is far nearer the truth. In fact, in the hydatidiform mole, we have not a new formation, but simply an alteration and degeneration of previously existing structures.

The next point is—What are the circumstances which determine this pathological alteration? On this subject the author differs materially from previous observers. Universally the transformation has been supposed to be the starting-point of the affection; that the disease of the chorion was the cause, the death of the embryo the effect. On the contrary, Dr. Hewitt contends that the death of the embryo occurs first, the chorionic transformation subsequently. The hydatidiform mole results from a degeneration of structures arrested in their development. Death of the embryo involves arrest of chorionic development, but not necessarily cessation of vitality in the chorion villi; these may continue to grow, and this peculiar growth, for a persistence of which it is necessary only that the decidua be not separated from the uterus, will then result in the formation of the hydatidiform mole. After attaining a certain degree of development, the chorion villi do not appear to be capable of undergoing the change in question; the conditions necessary for the change are not present, and if the fetus dies, no hydatidiform mole can be produced. The middle or end of the third month is probably the limit within which the change can originate.

With respect to the embryo, in most cases of hydatidiform change no trace of it is detected; when found, it is always very small. The evidence on this point, then, shows that the embryo perishes at a period so early as to leave no traces behind it, or that it does not survive a period roughly to be fixed at the end of the second month. We find, then, that all known facts are quite in harmony with the theory now offered as to the cause and nature of the hydatidiform transformation.

Some remarks are then made as to the cause of the death of the embryo in such cases. The author considers that, in the case of the patient above described, and in cases like it, it was very probable that the death was due to long-sustained but slow contraction of the uterus, produced by the irritation of lactation. Such contraction would diminish the nutrition of the villi, and in the end cause the death of the embryo. As contradictory of this opinion as to the influence of lactation in producing abortions, some observations published by Dr. Barnes are mentioned. Dr. Barnes found that, in a number of cases of abortion of non-special character, into the particulars of which he had inquired, abortion occurred in 17 per cent. of cases of conception during lactation, and in only 10 per cent. of other cases. On this subsidiary branch of the inquiry, however, only speculative opinions were put forward.

As to the interesting question of the possibility of a portion of retained placenta taking on the hydatidiform change, the following opinion is offered:—The placenta of a mature fetus cannot be so changed, but appearances giving rise to an erroneous conclusion on this point might arise—1st, in cases of double conception, one of the ova perishing at an early period, and the degenerated

chorion villi remaining in the uterus after the normal birth; and, 2dly, in the perhaps possible case of a portion of the chorion villi having changed from accidental separation from the embryo, the remainder growing normally.

Lastly, the question—"Can true hydatids be expelled from the uterus?"—is considered. The author is inclined to admit the possibility of this occurrence. When so expelled, the true hydatids arise, doubtless, in the uterine wall, and subsequently burst into the cavity of the uterus. A very simple examination would be sufficient to distinguish between such bodies and the hydatidiform cysts resulting from chorionic change. The fact, that in true hydatids we find cysts enclosed one within the other, and in the other case round or oval bodies attached one to another like heads, would be alone sufficient to prevent the possibility of a mistake on this point.

The several points referred to in the paper are illustrated by drawings and preparations.

Art. 156.—On the treatment of Urethritis in Women by Urethral Compression.
By M. THIRIAUX.

(*Presse Med. Belge*, No. 50, 1856; and *Medical Times and Gazette*, May, 1856.)

M. Thiriaux observes that inflammation of the mucous membrane of the urethra is the most frequent affection that attacks the genito-urinary organs in women. It is an error to suppose that vaginitis is oftener met with, for an exact statistical account of the numerous cases observed in M. Thiry's wards at the St. Pierre Hospital, Brussels, proves that the women attacked with urethritis far exceed those suffering from vaginitis. This difference is especially observed among women who have had several children, and those who have committed sexual excesses. This greater relative disposition of the urethral mucous membrane to become inflamed depends upon the vaginal membrane having the sensibility of its mucous membrane gradually blunted by the repetition of stimulation, so that at last simple irritating causes cease to affect it, and sometimes even virulent contagious causes, under certain circumstances, are inoperative. It may depend also in part upon the greater care with which cleanliness of this part is observed. Every one is aware how obstinate urethritis frequently proves in women; and the persistence of the inflammation may give rise to various alterations, the most frequent of which are, engorgement of the sub-urethral cellular tissue, deviations of the canal, and the formation of cul-de-sac, in which the matter accumulates. Pressure made under the urethra will then press out a quantity of pus, the existence of which mere inspection could never have made known. These engorgements and collections, in their turn, become the means of keeping up the irritation and inflammation, especially when the practitioner is not aware of their existence. These obstinate cases are then best treated by making sub-urethral compression by means of a plug of tow or charpie. This mode of treatment M. Thiry has long followed with great success—whether as the sole, or as a powerful auxiliary means. A firm plug, of a suitable size, is introduced into the vagina, so as to take its point of support at the posterior commissure, and press the urethra against the pubis.

Art. 157.—On the various forms of Vulcitis. By Dr. SIMMONS, Professor of Midwifery in the University of Edinburgh.

(*Medical Times and Gazette*, April 16, 1856.)

The vulva are liable to other types of inflammation besides the simple inflammatory or phlegmonous, and also quite independently of any syphilitic origin. Various forms of eruptive inflammation are liable to appear in this part of the body, and particularly in some females at the menstrual period, and in others in consequence of the acridity of the discharges which may pass from the vagina at other times, and under states of internal disease. Thus, these parts are the occasional seat of attacks of erythema, eczema, &c. Herpes occasionally appears, generally after some constitutional disorder, on the external labia or vulva, of the same form and running the same course as herpes labialis, or rather, as

herpes preputialis in the male. Dr. Simpson has seen also very distinct herpes upon the cervix uteri. Various other forms of acute and chronic inflammatory eruption may appear in these parts, but they require no special notice, as they require no treatment specially different from the same diseases when situated elsewhere. One of the most common varieties of eruption on the vulva consists of an affection like acne, *i. e.*, it consists of scattered tubercles, sometimes of considerable size, formed by inflammation of the follicles of the vulva and nymphæ. But there are some forms of specific inflammation, if we may so call them, of the vulva, some varieties of vulvitis, if we may so speak, which call more particularly for notice, such as papillary vulvitis, purulent vulvitis (which is liable to occur in infants), gangrenous vulvitis, or *noen*, &c.

1. *Papillary Vulvitis*.—"This is a form of chronic inflammatory disease of the vulva which is fortunately not very frequently met with in practice, but when it does occur, it is usually accompanied with much distress, and is often very obstinate in the way of cure. By this term, papillary vulvitis, I mean a chronic inflammatory affection of the mucous membrane of the vulva, and sometimes of the vagina, in which that membrane presents an intensely red color, either in raised red patches on the edges of the lower vagina folds, on the tips of the caruncular myrtiformes, or the nymphæ, or on the sides of the vulva, or more generally diffused over a large portion of the surface of the vulva. On these red patches or surfaces you find, on examination, the enlarged mucous papillæ standing out like the swollen villi of a raw and irritable tongue. Often some of the most elongated papillæ bleed at their tip when touched. Any rough pressure of the vulva gives pain to the patient. The disease may be found in the unmarried, but not frequently; it comes on after marriage, and produces such tenderness of the parts that sexual connection is attended with much suffering, or becomes impossible. Usually, indeed, there is a sort of spasmodic contraction of the orifice of the vagina aggravating the evil. Along with the red and enlarged papillæ you will sometimes, but not always, find interspersed the small follicular glands of the vulva, swollen and inflamed, and sometimes ulcerated.

"*Treatment*.—Patients affected with this disease anxiously demand professional relief, as their happiness as well as their health is sometimes destroyed by it, and the treatment, as I have already hinted, is sometimes by no means easy. I have known the diseased surface treated heroically and perseveringly with a repetition of strong caustics; but the simplest and surest mode of cure, according to my experience, consists in the continued use of local astringent measures, combined when necessary with sedatives, such as a strong solution or liniment of tannin frequently applied during the day, and with morphia or other sedatives added to it. Or you may dissolve your astringent in glycerine, and in this form it will remain more permanently in contact with the diseased surface. Latterly, I have trusted principally to the daily free application of a saturated solution of perchloride of iron in glycerine—an application producing little or indeed no pain—and I think with the happiest effects. General tonics, warm bathing, &c., must not at the same time be forgotten.

2. *Purulent Vulvitis, or Leucorrhœa in Infants*.—"This is a form of inflammation of the vulva which is by no means infrequent in female infants and children. It is, perhaps, however, more interesting and important in its medical jurisprudence relations than in its purely practical aspect; for, very often, especially when it occurs in patients of the lower orders, the disease is properly imagined, by the relatives and friends of those attacked, to be the result of venereal infection. The child is brought to the medical practitioner, under the idea that he will confirm this unhappy and dangerous notion. An excitable mother will, by threats and by suggestive and leading questions, get the frightened child to own to some absurd and groundless tale, in confirmation of her maternal theory of the origin of the malady; and no doubt men have been repeatedly tried, and convicted too, of imparting this disease to young children, by forced sexual connection, when they were totally innocent of such a crime, and when the affection had totally a different origin; for the purulent vulvitis, or leucorrhœa, seen in young female children, has, as a general rule, no more an impure sexual origin than has inflammation of the

eyes, throat, or lungs. Like most other local inflammations, it usually arises first from some degree of deranged or impaired general health in the patient, and secondly from the patient, when in this, it may be quite temporarily, depressed condition, being exposed to cold and wet, or the other exciting causes of inflammation. Want of cleanliness, the irritation of acrid urine, &c., sometimes act as a local exciting cause. Like angina, diphtherite, and some forms of catarrh and dysentery, this inflammation of the mucous membrane of the vulva, like those inflammations which I have named of the mucous, pulmonary, and intestinal membrane, attacks more than one child in the same family, and may even prove partially endemic or epidemic in a district.

Symptoms and course.—The disease usually begins with local heat and itching; some degree of redness and swelling; pain and scalding in passing water, and sometimes uneasiness in walking; but for the first twelve or twenty-four hours there is no discharge from the inflamed mucous membrane. But you will seldom see the disease in this early stage. Almost always you are called upon to see or prescribe for the patient, because the affection has so far run on in its course, that there is already more or less discharge from the vulva. The discharge is, at first, of a thin mucous character, but rapidly becomes purulent and yellow, or yellowish-green in its tint. Occasionally the discharge becomes extremely profuse. It is apt to become thick and hardened along the outer edges of the external labia, binding these opposed edges slightly together by a kind of imperfect crescentic crust; but when the labia are drawn asunder, the whole surface of the vulva is found to be covered over by a layer of the liquid puriform secretion. The disease very rarely extends upwards into either the vaginal or urethral canals. Occasionally there is, at points, an appearance of vesicular or pustular eruption; and, indeed, some type of mucous eruption in the part would probably be discerned as a common, if not constant phenomenon. If we had an opportunity of searching for it early in the course of the disease. Sometimes, but by no means frequently, there supervene one or two spots of ulceration, especially towards the orifice of the vagina.

Treatment.—Acute infantile leucorrhœa shows, like many other analogous ailments, a natural tendency to run through a definite, and often not a very long course, and has a natural tendency to end in a spontaneous cure. But if not arrested, it sometimes ends in a chronic, protracted form of discharge; and our medical interference is required, not only to prevent this termination, but also to relieve the patient from the immediate distress and annoyance which the disease produces.

In the first stage of the affection you will often find your patient requiring some little constitutional treatment. A dose of calomel, or grey powder, with a few grains of some aperient alkali, as magnesia, is sometimes all that is necessary; but it may require to be repeated. If the discharge becomes protracted, chalybeates or other tonics may become necessary. Use, in short, your constitutional remedies here as elsewhere, to bring the constitution and its principal functions as far as possible to the normal standard of health, and cure the local disease by appropriate local applications.

In the earlier and more inflammatory periods of the disease, use locally to the vulva sedative applications: in the latter periods, and for the purpose of reducing and arresting the attendant discharge, use astringent applications. And you may employ these local applications in the form of lotions, or liniments, or ointments.

Frequent ablution with warm water, or warm milk and water, is one of the best and most soothing applications; and sitting in a warm cup-bath during micturition, is one of the surest means of relieving the pain and scalding attendant on the passage of the urine. A solution of acetate of lead and one grain of acetate of morphia to the ounces of water, makes a good sedative lotion when there is much local smarting and pain; or you may use a weak solution of borax, or of nitrate of silver. When sedative lotions are preferred, it is generally necessary to leave a slip of charpie, or lint, wetted with them, between the labia.

But I think you will find the local affection more manageable under sedative liniments; as by applying several times a day, with a brush or feather

cold cream, with, if you think fit, a little morphia added to it; or a liniment made of equal parts of olive oil and lime-water. Liniments are more lasting as local applications than lotions; and not so liable as ointments to fret or irritate.

"But the time soon arrives when you must add local astringent remedies to the sedative, or substitute the former entirely for the latter. With this view, use tannin or sulphate of zinc, or aluminated iron, or any analogous astringent, in the form of a lotion or liniment; but take care not to use them of such strength that they prove irritant in their action, so as to force you back again, for a day or two, to the sedative treatment.

3. *Gangrenous Vulvitis or Norma*.—"A variety of vulvitis seen sometimes, but fortunately very rarely, in practice, which generally begins with erythematous inflammation of the vulva, and the formation of one or two blisters or bullæ, and rapidly runs into one gangrene and phagedæna. This gangrenous vulvitis has been seen in adults as a complication in particular epidemics of puerperal fever; and in infants it has been observed either under an epidemic form, like epidemic gangrenous or malignant sore throat; or in isolated cases—most frequently as a sequela of scarlatina, measles, and other debilitating forms of febrile disease—or as a result of some constitutional cachexia. The disease not unfrequently runs on to a fatal termination.

"*Treatment*.—You will generally find your patient requiring early, or even from the first, stimulants and quinine. If these are not yet called for, trust to considerable doses of chlorate of potash; or of this and muriate of iron, every two or three hours. Apply poultices and sedatives locally in the early stages of the disease, at least. The progress of the gangrene has, it is said, been sometimes arrested, or appeared to be arrested, by the application of nitric acid, &c.

4. *Prurigenous Vulvitis*.—"Not unfrequently a prurigenous eruption appears on the mucous membrane of the vulva, and extends up along the vagina as far as the cervix uteri. It extends also often, and is sometimes, indeed, originally situated on the cutaneous border of the vulva, and appears on the outer cutaneous surface of the labium, spreading backwards along the perineum to the circle of the anus. Occasionally, it is a flitting and transient affection, recurring with menstruation, pregnancy, or delivery. But patients will apply to you, from time to time, in whom the disease has become more chronic and fixed, having lasted for weeks, or months, or even years, producing almost constant irritation and distress; frequently interfering with rest and sleep, and rendering the victims of it miserable and almost deranged. When the disease has become somewhat chronic, and necessitates the patient to attempt to alleviate it by constant and sometimes rough friction, you will find the mucous and even the cutaneous surface, at the most irritated parts, white and thickened with red fissures, and scratches appearing on the affected part. I have spoken of the disease as fundamentally prurigenous; and we can often see on the affected surface a small papular, and sometimes a vesicular, or even aphthous eruption; but cases ever and anon occur, of severe pruritus in these parts, without your being able to trace in them any distinct eruptive appearance.

"*Treatment*.—Prurigenous disease of the vulva or neighborhood can be relieved, and generally cured, by the assiduous and persevering application of a solution of bicarbonate of soda (five or ten grains to the ounce of water), infusion of tobacco, either alone or containing a similar quantity of borax dissolved in it, or an ointment of iodide of lead (one drachm to the ounce), or an ointment of bismuth and morphia. Chloroform also applied locally, in the form of vapor, liniment, or ointment, forms one of the most certain means which you can use. The simplest way of employing it is, by adding a drachm of chloroform to an ounce of any common or sedative ointment or liniment. You will find great advantage in the management of the disease, in alternating some of these local applications with each other, for most of them begin to lose their good effects when persevered in above a few days consecutively. In the more obstinate and severe cases, strong astringents are sometimes of the greatest use, employed either alone or with the sedatives, as a very strong solution or ointment of alum or aluminated iron or tannin; or the powder of these substances mixed up with some powdered morphia, and applied continuously, for

a few days, to the irritated part. Several times, in very obstinate cases, and where the disease was limited to a portion or circle of the cutaneous tissues, I have temporarily separated the affected portion of skin by a free subcutaneous incision, with a tenotomy knife. Of course, it leaves no wound, except by the entrance of the knife itself. I have found this operation perfectly and entirely successful in some cases, and only of temporary benefits in others.

"Perhaps it is unnecessary to add that the general health of the patient must be fully attended to, and that sometimes arsenic, aqua potassæ, and other alterative medicines of that description, are required."

ART. 158.—*On Coccydynia.*

By Dr. SIMPSON, Professor of Midwifery in the University of Edinburgh.

(*Medical Times and Gazette*, July 2, 1850.)

Cases such as the one here related do not appear to be described in any book, and the operation also has the merit of novelty.

CASE.—"E. F.—, a married female, æt. has never had any children, but menstruated regularly and painlessly, and enjoyed good general health until about two years ago. At that time her menstrual discharges began to be more profuse and frequent than usual, and to be attended at times with pain. This she for a long time disregarded, believing the phenomenon to be due to the 'change of life;' but as she was becoming gradually weakened by the excessive losses of blood, she applied at my house for advice, about six or eight months ago, just after recovering from a severe attack of menorrhagia of three weeks' duration. In addition to the bloody discharges, and at the intervals between them, she suffered from a constant, fetid leucorrhœa; and she also complained of occasional shooting pains in the back and lower parts of the abdomen. She was much emaciated, and had a very cachectic appearance, and my nephew, Dr. Alexander Simpson, who then saw her, found the cervix uteri to be very much enlarged, indurated, and ulcerated; and it felt rough and irregular, like a commencing cauliflower excrescence, and bled freely when rudely touched. The ulceration and induration were not distinctly limited to the cervix, however, so that no hope could be entertained of curing the disease by amputation of the cervix uteri. But the dried sulphate of zinc was applied on several occasions, with the happy result of causing nearly the whole of the indurated and infiltrated mass to slough away, and there is now left a firm and healthy cicatrix. The patient does not now suffer from any unusual loss of blood, although she menstruates freely and regularly; and, so far as regards the uterus, she may be considered perfectly well, if we except a small hard knot in the anterior lip of the cervix, which may still, perhaps, be regarded as suspicious. But as she recovered from her uterine disease, and as the symptoms attendant on it began to disappear, she commenced to complain, after sitting on the damp grass in her avocation as a washerwoman, of a dull, aching pain seated in the very lower extremity of the spinal column, for which my nephew contented himself with prescribing in the first instance a belladonna plaster, and afterwards various local anodynes and general tonics for a space of two or three weeks. As this pain, however, instead of abating, seemed always to become more constant and harassing, and as the patient could not sit down except on one hip at a time, and even then with the greatest suffering, an examination was made of the painful part, when it was found that the coccyx was unusually straight and long, so that it reached far backwards and downwards, while the very tip of it was felt through the rectum to be projected suddenly forwards. *Pressure of the coccyx and movement of it in any direction caused pain.* To subdue this sensibility thirty drops of a watery solution of the bismuthate of morphia were twice injected into the soft parts around the bone, on two different occasions, and with an interval of several days between each injection. This measure had the effect each time of deadening the pain, but it led to no permanent result. The next step employed for her relief was the separation of the coccyx from all the surrounding muscles, tendons, and ligaments, which was done subcutaneously, with a tenotomy knife. Three or four weeks afterwards

the patient returned, saying that for a time she had felt better, but that during the last week she had suffered as much pain as ever, and was incapacitated for work from it. She was, in consequence sent into the hospital; and on Saturday, June 3d, I removed the two lower segments of the coccyx by cutting down upon them through the skin, and dividing the bone with a pair of bone-pliers; and then the separated portion being pushed through the wound by the finger of an assistant passed into the rectum, it was easily detached from the soft parts, and so removed. The edges of the wound were brought together with two iron wire stitches, which were removed some days afterwards, and the wound is now almost closed up.

"Amputation of the coccygeal bones has been had recourse to in this patient, as it seemed to afford her the best chance of relief from a peculiar form of disease, which is anything but rare, although no written account of it has, as far as I know, yet appeared. If you will take the trouble to make inquiry of observing men in extensive practice, or if you have the opportunity of making the observation for yourselves, you will find that cases are ever and anon occurring, where the patient complains of pain in the region of the coccyx, very constant, and aggravated by certain movements of the trunk, and usually attributed by the patient to some kind of direct injury, or to exposure to cold. The most common cause of the disease, so far as I have been able to discover it from inquiries addressed to the patients themselves, is injury of the coccyx, inflicted either by falling backwards upon it, or, more frequently still, brought on by sitting down suddenly and forcibly on the corner of a chair or other angled body. Often enough, however, it is impossible to trace it to any traumatic origin; and the patient can only tell you, as in the case of our patient in the hospital, that she had been sitting on damp grass, or had been otherwise exposed to cold before she began to experience the pain; or she may be altogether unable to adduce any assignable cause. I say she, because all the patients whom I have yet seen affected with this disease have been of the female sex; although I presume it is not entirely confined to them, and it is even not very clear why they should be more subject to it than the members of the other sex. I have said that when you have been made aware of the possibility of the occurrence of this complaint, and when you begin to look out for it, it is by no means very rare. Diseases, like other objects in nature, sometimes seem rare, not because they are so in reality, but merely because our attention has not happened to be fully called to the recognition of them as they pass before our eyes. I think you will hold me justified in making this remark, when I tell you that within the last three weeks I can count up at least ten cases of this particular malady which I have seen in private or consultation practice. Of course, it is a very unusual circumstance to meet with so many during such a short period, but it is not more wonderful than what often enough occurs in the experience of all surgeons in extensive practice, who find that during a short space of time they may have a succession of cases all presenting the same form of injury, as an epidemic, as it were, of fractures or dislocations, and that a long period may elapse before they again meet with a similar case. Such a rapid succession of cases of the kind I allude to is, I repeat, of course an exceptional occurrence. But I know of old, and, on looking back upon many past years of practice, that I have seen and recognized a great many cases of this disease; and I have probably seen many others also, the true nature of which I did not at the time understand. It is, therefore, I believe, by no means an uncommon disease."

Speaking generally of the symptoms of coccydynia, Dr. Simpson says: "The leading symptoms of the disease is pain in the region of the coccyx experienced by the patient whenever she sits down and rises, and sometimes while she remains in a sitting posture. Most of the patients affected with it are obliged to sit on one hip, or with only one side resting on the edges of a chair, or with the weight partially supported by a hand on the chair; and they are rendered sometimes very awkward and miserable in consequence. Some of them actually dread sitting down—so great is the pain then felt; and not only so, but, as I have hinted already, the pain is in many cases aggravated or renewed whenever it becomes necessary again to resume the erect posture. There are

other movements of the coccyx besides, which are liable to be attended in such cases with pain. Thus some patients have pain with every step they take in walking, while in others the movements of progression excite no uneasiness whatever. Others again feel the pain most when the bowels are being evacuated, or under any circumstances in which the sphincter or levator ani, or the ischio-coccygeal muscles are called into action. The pain is not in every case acute or intolerable; and you will sometimes meet with patients who have borne with it for many years, sometimes without having sought any relief at all, sometimes in despair from the inefficiency of the remedies that have been employed. I have under my care just now a patient suffering from menorrhagia, who tells me she has been annoyed more or less for twenty years with a pain of this description in the coccyx, not very severe, but which she has never found any means of alleviating, though formerly she consulted various physicians and surgeons on the subject. Again the pain is not at all times equally severe in the same patient. When in Cumberland lately, I saw a lady who had kept her bed the whole winter, because of excruciating pain which she experienced in attempting to sit upright or walk about; but who, at the time when I saw her, had got so far relieved as to be able to move about a little. The distinguishing feature of the disease in every case is that the pain is felt at the lowest part of the spine, or rather in the site of the coccyx, to which it is always specially referred by the patient, and where pressure always aggravates it. Pressure and movements of the coccyx, too, with the finger in various directions, produces pain, and the kind of movement which is thus attended with suffering, differs in different cases."

The following quotations will serve to give Mr. Simpson's views with respect to treatment:

"All kinds of constitutional treatment, and most forms of topical applications, are often almost or altogether of no avail for the cure of this disease; and the only means of obtaining radical relief—and happily it is a means which proves successful in almost every case—is the complete separation from the coccyx of the muscular and tendinous fibres that are in connection with it. To effect this, you must introduce a tenotomy knife underneath the skin, at a short distance from the tip of the coccyx, pass it along the posterior aspect of the bone, and then divide the muscular and tendinous attachments, first on one side and then on the other, and finally all round the tip of it. It is not in every case necessary to make such a free division as I have indicated. In some instances division of the fibres of the gluteus maximus of one or the other side will suffice, or detachment from the coccyx of the sphincter and levator ani may be all that is requisite for a cure. This simple operation is easy and rapid of performance, like other examples of subcutaneous surgery is not attended with bleeding, and is attended with no great degree of suffering; and the result is in almost every case instant relief of the pain, and in most cases a perfect and permanent cure of the disease." * * *

"I have met with one or two cases of coccydynia, however, which I have failed to cure by means of this operation; and where division of the muscular and tendinous fibres—even the most complete—and thus setting the coccyx perfectly free and perfectly at rest for a time, has merely eased the pain temporarily without relieving the patient of it altogether. In our patient in the hospital the operation proved thus unsuccessful, and, therefore, I put in practice, what I had often thought of having recourse to, the more radical measure of removing altogether the coccyx or a portion of the bone. This amputation of some of the segments of the coccyx was resolved on the more readily in her case, because in her the several bones of it seemed firmly ankylosed, and at the same time projected unusually low down, and was turned suddenly inwards at the tip. Making an incision of about two inches in length through the skin stretched tightly over the end of the bone, I exposed the latter, and having separated it from its connection with the soft parts, and divided it between the second and third of its vertebrae with a pair of bone pliers, its two lower segments were easily removed. I have another patient suffering from this disease, in whom I have repeatedly had recourse to the isolation of the coccyx by means of the tenotomy knife, but always with the effect of producing only a

temporary relief; and in her case I have long proposed to perform an operation similar to that performed in the patient in the ward, if the results prove as favorable as we desire, and as there seems at present every reasonable prospect of attaining. Removal of portions of the coccyx is an operation that has been performed more than once before, in cases of necrosis in some of its segments; but I believe its performance under the circumstances I have been describing to you, is altogether novel.

"I have said, that as a general rule, the result of constitutional treatment of any kind affords us little hope of being able to cure this disease by its adoption. But, as I have already hinted, there is a class of cases, of which I have seen a few rare instances, where the pain seems to partake somewhat of a neuralgic character, and where I think I have seen the patient benefited by the use of the remedies which are usually employed for the cure of neuralgic affections. At all events, wherever you find a patient complaining of pain in the coccyx, who at the same time is affected with pains in the other parts of the body, and who has the unhealthy chlorotic aspect common to those subject to neuralgia, you would do well in such a case to put your patient through a course of iron, arsenic, zinc, manganese, or other nervous tonics, or to make her use some of them in combination for a time. By this means you may possibly succeed in curing the coccydynia and in dispelling her other symptoms; and should that plan of treatment fail in effecting a cure, it will still form a very good and safe measure preliminary to the adoption of the severer but more certain operative procedure. I would only add, in connection with this point, that there is a leash of nerves lying all round the coccyx, and I once imagined that the relief obtained by isolation of the bone was due to section of these nervous cords. But now the explanation of the phenomenon which I have already given you seems to me to be the more probable, and that when the coccyx is separated from the surrounding tissues, no more pain is experienced, because the bone is by this means freed from the action of the muscles formerly in connection with it, and is thus placed in a condition of absolute rest."

ART. 159.—*On Ergot of Rye in Hemorrhage of the unimpregnated Uterus.*
By Dr. TROUSSEAU.

(*L'Union de Med.*, No. 36, 1859.)

The patient who was the occasion of these remarks suffered from carcinomatous metrorrhagia; and her case furnished a new proof of a fact which is more common than it is generally believed to be, that the most frightful cancers of the uterus may reach their last stage without causing pain; while in other cases, a cancerous affection that has made but little advance, may give rise to intolerable suffering. In the year 1852, M. Trousseau, together with M. Maisonneuve, tried a series of experiments with ergot on a large scale, in uterine hemorrhage, whether resulting from delivery, abortion, cessation of menstruation, carcinoma, or the presence of polypus or tumor. The results were, that the hemorrhages of women recently delivered were rapidly arrested, this medicine being the most rapid and the most certain in its effects. Even when it is powerless it is entirely harmless; but, in general, its efficacy is real from the moment when uterine contraction commences, the hemorrhage being arrested, although the woman may lose blood for some years. The contradiction is only apparent. Hemorrhage is, in fact, not constituted by the flow of blood from cavities into which it has been long since poured, but by its leaving the vessels in which it is circulating. Now, when after delivery, we give the ergot to combat the inertia of the uterus, the primary cause of the metrorrhagia, we provoke the issue of the blood contained within the uterine cavity; and such hemorrhage, which is only apparent, only ceases after the entire expansion of the blood extravasated within a certain time. As to the real hemorrhage, it is arrested by the contraction of the muscular fibres of the uterus, and the occlusion of the gaping sinuses.

In the hemorrhages arising from abortion, advantageous results were also obtained; but the loss of blood was not arrested so rapidly as in hemorrhage after delivery, and in the hemorrhages which occurred at the period of the

menopausis, its operation was so slow and uncertain that preparations of zhatany or sulphuric acid were preferred.

The ergot was also tried in carcinomatous hæmorrhage, and to the great surprise of the experimenters, succeeded almost as rapidly as in post-partum hæmorrhage, and more rapidly than after abortion. Of course fungoid, or encyphaloid cancers, from which a more or less sanguinolent mucus is always issuing, are not those meant, but cancer accompanied by hæmorrhage, which returns every ten or fifteen days, lasting three or four days. In seeking for an explanation of this occurrence, we may compare the state of the uterus, when the seat of cancer, to the organ in the impregnated state—a hypertrophied state of the muscular fibres being present in both cases. Louis' researches have already shown us that in cancer of the stomach, there is hypertrophy of the muscular tunic, not only when the pylorus is the seat of the affection (which would be explained by the increased effort required to surmount the obstacle opposing the passage of the aliments into the duodenum), but also in cancer of the large curvature.

With respect to the influence of ergot on internal hæmorrhages in general, such as epistaxis, hæmatemesis, hæmoptysis, &c., the experiments were not attended with success, or success, when obtained, could not be positively attributed to the treatment employed. Nothing is more difficult, in fact, than to judge of the efficacy of a medicine in hæmorrhage, an accident which is so essentially temporary, and of such variable duration. It is not possible to determine upon the action of a hæmostatic, except when, in the same individual, the hæmorrhage, after being reproduced with its particular characters, is then suspended by the action of the remedy. A woman, for example, is the subject of metrorrhagia, which usually lasts four or five days; and if on giving her the ergot it continues only twenty-four hours, to return again in its ordinary manner on the suspension of the remedy, we may then decidedly assert that the medicine is of service. But the other varieties of hæmorrhage are essentially transitory, hæmoptysis, or hæmatemesis, occurring at near or distant intervals, never to be foreseen or determined. In the majority of cases, too, these bleedings stop spontaneously, and medicines that may have been administered, sometimes acquire a reputation to which they have no right. At all events, ergot, or ergotine, has no advantage in these cases over any of the numerous other hæmostatic agents; and if it is more successful in the case of uterine hæmorrhage, it is not so because it acts upon the hæmorrhagic element itself, but because it exerts a special action upon the uterus, by virtue of which the fibres of this muscular organ undergo contraction.

Professor Trousseau concludes his remarks by referring to another case he had treated with large doses of digitalis, as recommended by Dr. Howship Dickinson. The hæmorrhage did not recur, but as it had already stopped prior to the administration of the medicine, the case proved nothing more than the innocuity of the medicine in infinitely higher doses than the professor had ever before employed it. He thinks the method well deserves further investigation.

Art. 160. — Inverted Uterus replaced after a lapse of nearly twelve months.

By Dr. West, Physician-Accoucheur to St. Bartholomew's Hospital.

(*Medical Times and Gazette*, Oct. 29, 1859.)

In this case Dr. West adopted the plan by which Dr. Tyler Smith accomplished the replacement of an uterus after it had been inverted for twelve years ("Abstract," XXVII., p. 218).

Case—A. A., æt. 25, applied at the out patients' room of St. Bartholomew's Hospital, August 27th, 1859, when she gave the following history of herself:

She had been married five years, and had given birth to two children, of whom the former was born after a natural labor two years and a half since; the second on October 16th, 1858. The child in this instance was also born alive after an easy labor, but the placenta was retained for three and a half hours; during which time very great hæmorrhage took place, and, in conse-

quence of it the patient became insensible, and was, therefore, unable to say whether it was eventually removed by hand, or expelled by the natural efforts. She was left by her labor in a state of such extreme weakness that she was quite unable to suckle her child, and suffered in addition from much pain in the abdomen and diarrhoea. These ailments confined her to bed; and at the end of five weeks phlegmasia dolens of the right leg came on, for which leeches were applied, and other treatment was adopted, until, at the expiration of seven weeks, she sought admission into the London Hospital, where she remained for a month, and left the hospital much benefited as far as that ailment was concerned.

Soon after leaving the hospital, and about three months after confinement, the menses first reappeared. From the first they were profuse, and intermingled with coagula: they lasted longer than natural, and returned more frequently, and for some time she had completely lost count as to when her periods were due, so frequent was their return, so almost constant their presence, while an abundant yellowish leucorrhoea appeared immediately on the cessation of the sanguineous discharge. The return of the hemorrhage compelled her on each occasion to keep her bed; but in spite of this precaution she had been reduced by it to a state of the most extreme exhaustion, her skin was sallow, her pulse very feeble and very frequent, and she had the aspect of a patient suffering from advanced malignant disease.

On making a vaginal examination, a tumor of an oval form was discovered hanging down for about two inches and a half through the os uteri, which closely surrounded, but did not constrict it. Suspicion was raised as to its nature by finding that the pedicle of the tumor was of the same thickness as its extremity, and also by the fingers when passed up behind it encountering a caducous, as if the uterus, with the exception of its orifice were inverted. Hemorrhage was not excited by the examination, but a rather abundant blood-stained purulent leucorrhoea. The patient was at once admitted into the hospital, and on the 29th the diagnosis was established by the following means:

1st. The uterine sound carried round the pedicle of the tumor encountered resistance to its further passage all round at the distance of half an inch. The finger, though introduced easily behind the tumor, could not be passed in front of it, as the anterior lip was too closely in contact with it.

2d. The fingers introduced into the rectum could without much difficulty be carried above the fundus of the tumor, showing that the body felt per vaginam was not an outgrowth from the uterus, but the uterus itself in an altered position.

3d. If, while one hand was in the vagina the other was pressed firmly over the symphysis pubis, at first, no body was felt between the two hands. Pressure made against the tumor in the vagina, however, brought it before long within the grasp of the other hand, when it was possible, through the thin abdominal walls, not only to distinguish its contour, but even to perceive the circular depression in its upper part which indicated the point of inversion of the womb.

Dr. Tyler Smith's case suggested an imitation of his proceedings, and accordingly, after efforts made with the hand by grasping and compressing the womb to restore its position, or at least to render it more yielding, an air pessary was introduced into the vagina and inflated to as great an extent as the patient could bear. On the following morning the os uteri was found much more dilated, and its tissue much more yielding, so that the fingers could now be passed all round the tumor with ease, and everywhere discovered the inversion of the substance of the womb. Manipulation of the inverted uterus was repeated daily until the 5th of September, and the pessary was on each occasion reintroduced and reinflated, with the exception of one day, on which it was discontinued, in order to obtain relief for the bowels.

It did not seem, however, that much was gained by the proceedings beyond that increased dilatation of the os which was obtained by the first introduction of the pessary. The vaginal walls, indeed, were rendered more yielding by the extension to which they had been subjected by the pessary, so that the

whole uterus admitted of being pushed up in the pelvis more readily than before, but no change was effected in the relation of the inverted body itself. A very offensive leucorrhœa had been excited by the pessary, and its distension had occasioned a very painful stretching of the vagina; but in spite of this the patient's health was already much better than at the time of her admission; she had already gained strength, and her complexion had lost something of its sickly hue.

I now attempted to modify the instrument, and had a pessary constructed so as to expand at its upper third more than elsewhere, in order to avoid needless stretching of the vagina; while it was fitted, by means of a wire stem, to a girdle which encircled the body in order to obtain a fixed point from which the pressure should act; a condition altogether absent in the air pessary, as at first employed.

This was first tried on September 20th, the patient having remained since the 6th without any attempts at the replacement of the organ. Some advantage seemed to be gained by the pessary thus modified. It retained its position well, and seemed to produce less discomfort, and to cause a less profuse and less offensive discharge. Still it did not appear to exert any influence on the uterus itself, its force being rather expended in stretching the vagina.

After a few days' trial I accordingly removed it, and had another constructed of smaller dimensions, under the impression that if it were introduced within the os uteri and there inflated, it was more likely to expand the uterine walls, and thus to replace the organ, than by any mere pressure exerted from below upwards against the fundus of the womb. On October 3d this new apparatus was introduced for the first time, and though no effect was produced in the first twenty-four hours, it was reintroduced on the 4th, and allowed to remain for forty-eight hours in its position. On the 5th the patient complained of a good deal of pain in the abdomen, though not of more than she had experienced on some former occasions; and it was with a feeling of glad surprise that on the 6th it was discovered that the organ had resumed its natural position.

The os uteri was widely open so as readily to admit two fingers, and its lips were much swollen, the uterine sound passed nearly three and a half inches, and the womb was now felt in its natural position by the hand placed over the pubes. The patient was kept quiet in bed, and for the next twenty-four hours, the urine was drawn off by the catheter. On the 7th the sound ascertained that the womb still retained its proper position. Menstruation came on on the evening of that day, and continued scantily until the 11th; and on the 13th the sound discovered the uterus to have somewhat contracted, and now to measure scarcely three inches; and on the 18th the patient left the hospital apparently in perfect health, and having walked about for some days without inconvenience.

The sole merit in such a case rather belongs to the person who first suggested the proceeding, and first by actual experiment proved its utility; but a few remarks on the best mode of employing it may be of service to those who hereafter may meet with a similar case.

1st. Neither in this case or in another which came under my care, some ten years ago, did any benefit appear to result from manipulation of the womb, or from any attempts with the hand to replace the organ, or to reduce its bulk. The utility of such endeavors will, I apprehend, be limited to instances of recent inversion, or to those exceptional cases in which the womb remains comparatively yielding and flaccid some weeks after the occurrence of the accident, as it appears to have done in those reported by Dr. Belcombe, and Dr. Miller.

2d. Many inconveniences attend the employment of the common air pessary, partly from the want of some fixed support to retain it in its place, and partly from the circumstance that the pressure it exerts being equal in all directions, a most painful distension of the vagina is inseparable from any attempt to exert efficient counter pressure against the inverted womb.

3d. This disadvantage may be easily overcome by means of a belt to fasten round the waist, the anterior half of which, made of steel, serves as a fixed point for a metallic wire, which is attached to a small wooden disc or cup that bears the pessary. The pessary itself, made of vulcanized india-rubber, and in

this instance four inches long by five in circumference at its middle, was rendered comparatively inelastic at its lower half by the introduction of several layers of linen between the folds of the india-rubber, while no such material intervened to prevent the full expansion of its upper half when it was filled with air by means of the syringe through the elastic tube that was connected with it. By this means continued pressure was exercised against the fundus of the inverted uterus, without painful distension of the vagina.

4th. I am uncertain, as to the exact mode in which the replacement of the uterus is effected, and doubt whether it is due to the direct pressure of the pessary against the fundus of the uterus, so much as to the unfolding of the uterine wall by the instrument when introduced into the shallow cul-de-sac within the os uteri, formed by the still uninverted portion of the cervix. If this supposition be correct, one's endeavor in any future case would be, first, to introduce a small pessary within the os, in order to dilate the aperture, and to follow this up by the employment of one somewhat larger, with the view of thus unfolding the wall of the organ, rather than to force the fundus upwards by direct pressure against it.

ART. 161.—Death from injection of Carbonic Acid Gas into the Uterus.

By Dr. SCANZONI.

(*Beitr zur Geburtsh.*, t. lii, 1856; and *Med.-Chir. Review*, July, 1859.)

CASE.—In this case it had been determined to amputate the neck of the uterus in a woman who was pregnant, the pregnancy being masked by attendant circumstances. The father of the patient, himself a physician, wished to practice for a few days injections of carbonic acid into the cavity of the neck, hoping by this means to produce a contraction of the vessels and to obviate the hemorrhages which so often complicate amputations of the uterine neck. He tried a first injection with the aid of an elastic reservoir; but scarcely had two or three cubic inches of gas penetrated the gaping mouth of the neck, when the patient cried out that she felt air entering the abdomen, head, and neck. Immediately afterwards she was seized with general tetanic convulsions; respiration became laborious and stertorous; the pulse rapid, small; the extremities grew cold, and death followed at the end of an hour and three quarters. The autopsy revealed nothing but considerable pulmonary oedema. The uterus, much thinned, contained a four months' foetus; it seemed that the hypertrophy, of which the body of the uterus is the seat in normal pregnancies, had been entirely expended on the neck. The mode in which death was caused is not clear; but the case suggests that extreme reserve should be used in resorting to injections of carbonic acid, whether for the purpose of producing anaesthesia or premature labor.

ART. 162.—Case of Vesico-uterine Fistula. By Dr. FLEETWOOD CHURCHILL, Professor of Midwifery to the King and Queen's College of Physicians, Ireland.

(*Dublin Quarterly Journal of Med. Science*, May, 1859.)

Mixed cases, in which the lesion involves vagina, uterus and bladder, are more common, and have been recorded by Jobert, Simpson, and others; but those in which the vaginal canal is entirely uninjured are rare; indeed, Dr. Bozeman the most recent, and one of the highest authorities on these lesions, has avowed his disbelief in their existence.

CASE.—A lady, æt. 30, who had been confined in India of her second child, in June, 1858, after a very tedious labor, terminated by craniotomy. She recovered pretty well, but about the tenth day remarked that the urine escaped involuntarily, and that she could pass none in the natural way.

She came to consult me as to what was best to be done, in September, 1858, bringing a note from a medical man in Wales, mentioning that the opening from the bladder was into the uterus, and not into the vagina.

On examination, in which I was assisted by Dr. Collis, I found the entire vagina uninjured, and by the speculum we could see the urine welling up

through the os uteri. I then introduced a catheter into the bladder, and readily passed it through the fistula into the cervix uteri, where we could touch it with another through the os uteri. So far as we could ascertain, the fistula was in form of a vertical slit in the cervix, and was of considerable size, probably extending to the body. Her health was good, and, what was a great advantage, the parts had not been excoriated by the urine.

It was very obvious that the choice lay between two operations: either I might slit up the cervix, expose the vesical opening, and close it by ligature, or I might pare the edges of the os uteri, and passing ligatures through it, attempt to produce adhesion of the opposite side, and so close the fistula.

The objection to the former operation were, that it involved more danger from the close neighborhood of the peritoneum, and that if, escaping this, the ligatures failed, we should leave the patient worse than we found her. The latter operation had the advantage of incurring no danger of leaving the patient "in statu quo ante" if it failed, and of affording effectual relief if it succeeded. It is true it involved, of necessity, sterility; but hardly more certainly, I think, than the perpetual current of urine through the cervix, and, as it offered a chance of relief from a disgusting infirmity, sterility appeared to me and to the patient the lesser evil of the two. As regards menstruation, with so free a communication, it was clear that the fluid would pass into the bladder and be discharged per urethram. I therefore gave my advice for the latter operation, but as it was novel and of such gravity, the lady and her friends very naturally wished to have the advice of some London authority. They accordingly went to London, and consulted Mr. Cesar Hawkins and Dr. R. Lee, who, after very careful consideration, concurred in the advice I had given, and sent her back to me.

On November 25th, 1858, assisted by Drs. Beatty, Sawyer, and Collis, I proceeded to perform the operation, placing the patient in the position for lithotomy, and giving chloroform. Then, separating the vaginal parietes by dilators, I pared a strip off all round the inner edge of the os uteri, and inserted four silver-wire ligatures, which were maintained *in situ* by Bozeman's button. The operation occupied an hour, but its conclusion was so far satisfactory that not a drop of urine escaped into the vagina. Opium was given to constipate the bowels; a catheter was introduced and left, and the patient placed in bed. The catheter was changed every day, and the vagina syringed with cold water. Up to the time we removed the button-shield, on the eighth day, not a drop of urine had escaped. On the thirteenth day I withdrew the ligatures, and examined with the speculum, and found, to my disappointment, that although not a third of its former size, there was a portion of the os uteri not closed, through which I saw urine escaping.

I still kept the patient in bed a day or two, and an attack of erysipelas lengthened the time to a week, but I told her that I did not see any use in continuing the catheter. We then contemplated a second operation, but upon inquiry about the escape of urine, after a day or two, I found, to my surprise and gratification, that none escaped unless the bladder was much distended; that if she passed water per urethram, which she could do very well, every three hours, not a drop came the other way, and this improvement continued until she left this country, three weeks after the operation. Within a few days I have heard from the lady, and I find that the relief still continues.

What may be the exact state of the parts I do not know, for I was too much afraid of disturbing such a salutary state of affairs to investigate; but though I do not bring it forward as a case of absolute cure, I do think it not only justifies the operation, but affords the greatest hope of future success in similar cases from a like operation.

Until a few weeks ago I thought this was the only example of an attempt to close the os uteri for the cure of a vesico-uterine fistula, but I read in the report of Dr. Simon that he had performed the same operation with perfect success.

ART. 153.—*On the employment of Pessaries, with the description of a new instrument.* By Dr. E. NOEGGERATH of New York.

(*New York Journal of Medicine*, Sept. 1852.)

That pessaries have, by mismanagement and their application to inappropriate cases, frequently done mischief and complicated the evils they were intended to counteract, is a fact which I believe few physicians who have seen much practice will deny; at the same time it is no less generally admitted that there are cases in which the pessary is not only of service, but actually necessary to a cure. Dr. Noeggerath is decidedly of this opinion, and before describing the new instrument recommended by him, he thus points out the cases which he considers as imperatively demanding the use of the pessary.

"1st. Prolapsus in that portion of society, where it is most commonly met with, viz., in poor women, who have neither time nor means to undergo a complicated course of medical treatment.

"2. Prolapsus of a very long standing, where the causes may be removed by careful management, while their effect upon the falling of the womb resists every other means.

"3. Those cases of prolapsus, not unfrequently seen in otherwise strong and healthy women, where the most thorough examination is unable to detect anything apart from the normal state besides a relaxation of all the apparatus supporting the womb. Admitting that a pessary is required in a given case, the important question occurs, what kind is to be chosen? The requisites of a good instrument are as follow: first, it must retain the womb in or near its natural position; second, it must neither irritate the womb nor the vagina; third, it must not interfere with the patient's moving round, sitting, or the excretion of the urine or feces; fourth, it must be composed of a substance which resists the corrosive influence of the secretions from the genitals; fifth, it must be so constructed as to be easily introduced and removed by the patient herself; sixth, it must be as cheap as possible."

Our space will only admit of a brief account of the nature of the instrument.

"Dr. Zwank, of Hamburg, published an instrument in 1853, which he called a hystrophor. It consists of two ovoid thin pieces of metal, covered with india-rubber, or of wood, connected on one end by a joint; in the neighborhood of this joint, on the external sides of the wings, is a metallic pin on each side, two inches long, which can be screwed together at the lower end. (Figures are given in the original paper, to assist the reader in comprehending the mechanism of the instrument.) In applying the instrument, the wings are approached as much as possible, and introduced so that its convex portion is turned toward the sacrum and pushed upward as high as possible, toward the anterior portion of the ligament vagina, in front of the cervix uteri. Afterwards the lower ends of the metallic handles are compressed, and fastened by the screw. In this position the instrument is retained by itself.

"About the same time Dr. Schilling, of Munich, invented quite a similar instrument to that of Zwank, the only difference being that the movement of the wings is effected and can be regulated by the screw at the lower end."

The author states that these instruments are superior in every way to any yet invented, but still they have some disadvantages, owing to the substance of which they are composed. "The greater number of them are now in use being covered with a coat of vulcanized india rubber, the discharges of the vagina destroy it in a very short time. After this has been done, the metallic portions begin to rust and decay, thus irritating the vulva; the furrows of the screw at the lower end begin to crust, or the screw, if turned too firmly, cannot be untwisted. In order to avoid these inconveniences, Dr. Balenburgh, of Coblenz, modified Dr. Zwank's pessary, and described his instrument in a short thesis in 1857. It is made entirely of boxwood, and its wings are a little differently shaped, viz., they are slightly curved downwards at both ends, so that the lower side forms a concave surface. In consequence of this shape, the lateral branches closely adapt themselves to the inner surface of the descending ramus of the pubis, thus presenting a kind of hook, which gives a strong hold to the instrument when in the vagina. Both wings move in the

centre part by two joints, thus leaving a hole in the middle, through which the secretions of the vagina are allowed to escape. Instead of the screw, Dr. Eulenburg perfected the opening and shutting of the wings, by means of an elastic india rubber ring, which runs in a channel around the body of the hysterophor or immediately below the two joints. As every particle of metal is avoided (except the small pin running through the joint), and as the boxwood resists more than any other substance the corrosive influence of the vaginal discharges, it is lighter, will keep longer, and will cause less irritation than the other instruments.

"For my own part, I avoid the use of pessaries as much as possible. But I have under my care a number of cases, in which a pessary was the only remediable means justifiable. I have tried a great variety of them, and have now come to the conclusion that Zwank's (or Eulenburg's) hysterophor answers better the requisites of a good pessary than any other."

ART. 164.—*On Peritonitis in relation to Uterine Pathology.*

By Dr. TILT, Senior Physician to the Farringdon General Dispensary, &c.

(*Lancet*, Aug. 6 and 27, and Sept. 10, 1859.)

In these papers, Dr. Tilt dilates with much clearness and ability upon the history, the frequency, the symptoms and diagnosis, the march and terminations, and the treatment of inflammatory lesions on the peritoneum of the female pelvis. Speaking upon the march and termination of the complaint, he says:

"I have described a first attack of pelvi-peritonitis, which is generally cured in healthy subjects from the eighth to the fourteenth day, but will be protracted in the sickly, and is in all cases very liable to relapse at the ensuing menstrual periods. These relapses are evidently caused by the active turgescence of the abundant blood-vessels which subserve the menstrual function. Indeed, these relapses do not occur when menstruation has been permanently checked by phthisis or any other constitutional complaint. This liability to relapse had been already claimed as a character of peri-uterine phlegmon by Mr. Casselin; but it is a singular property to ascribe to phlegmonous inflammation, whereas, in connection with peritonitis, the occurrence of frequent relapses harmonizes with all we know of chronic inflammation of serous membranes, and of their liability to frequent inflammatory exacerbations.

"Repeated attacks of pelvi-peritonitis may cause the neighboring organs to adhere, so as to form solid tumors, distinctly felt in the hypogastric region, the diagnosis of which is sometimes exceedingly obscure. I remember hearing it stated by Grisolle, that he had often had sent to him as instances of false abscess, cases in which there were large accumulations of false membranes in the iliac regions. Sometimes the tumor thus formed is sufficiently large and central to have been mistaken for an ovarian tumor, and gastro-tomy has even been performed under such circumstances. When a digital examination is made at this stage of the complaint, the peri-uterine swelling is no longer uniformly semi-elastic, it has become irregular and knotty, owing to the absorption of the serum and the condensation of irregularly deposited false membranes. It may happen, particularly after parturition, that the unhealthy state of the blood may change the character of the peritoneal outpouring. Instead of being sero-adhesive, it becomes purulent, and the pus accumulated in the recto-vaginal pouch finds vent by small openings into the vagina or the rectum, a circumstance which does not much alter the prognosis, unless the patient's health is seriously impaired.

"Pelvi-peritonitis seldom leads to a fatal termination; but if it be long protracted, there will ensue a state of anemia, and a general break-down of health. This condition may be hastened by floodings, or by long-persisting uterine inflammation and discharges; and, as might be anticipated, an endless variety of nervous and hysterical symptoms will then make their appearance. These are the worst consequences of pelvi-peritonitis, but the large majority of patients recover without experiencing, in after life, any inconvenience. This is evident from the fact of our so frequently finding, at post-mortem examinations, pelvic bands and adhesions which had not in any way interfered with

health. Those, however, in whom repeated attacks of pelvi-peritonitis have developed solid unyielding bands, awkwardly attached, remain ever liable to serious accidents. Thus it has been affirmed by Rokitsansky and others, that women were subject more than men to incarceration of the bowels, owing to their becoming obstructed by one of those strangulating bridges, as in a case related by Dr. Renaud, of Manchester; and Dr. Brinton has lately stated, in the admirable lectures delivered at the Royal College of Physicians, that intestinal obstruction by bands and adhesions on the diverticula or the peritoneum external to the bowel, might be estimated at $3\frac{1}{2}$ per cent.

Displacements of the womb are much more frequently caused by pelvi-peritonitis than is generally admitted, and it is obviously absurd to treat such cases by intra-uterine pessaries. Thus I have found the wound drawn up by bands, uniting its fundus to the anterior walls of the abdomen. Huguier has found lateral flexions of the womb to be caused by pelvic adhesions; and if, as Dr. Oldham has correctly observed, dysmenorrhœa induces retroversion, it is sometimes owing to peri-uterine inflammation, and subsequent adhesions. Struck by the frequency of adhesions when the womb is in a state of flexion, Virchow has even supposed that the uterus was bent upon itself by the bands originating in peritonitis; but I rather look upon them, with Seanzoni, as complications determined by the prolonged flexion of the womb. In some cases, false membranes so bind down the womb as to render permanent its flexion, and any attempt to correct it dangerous. It is said that partial atrophy of the womb has been likewise caused by the pressure of voluminous false membranes. In like manner, if part of an ovarian tumor becomes inflamed, it often brings on local peritonitis in the corresponding portion of the peritoneum, thus producing those adhesions so difficult to detect, and which have so frequently prevented the removal of ovarian tumors after the operation of gastrotomy. Cancer of the womb is generally associated with pelvi-peritonitis, by which it becomes more or less immovably fixed.

Again, there is no more frequent cause of sterility than pelvi-peritonitis. This has been long well known to the profession, and in a paper which I had the honor to read before the Westminster Society, I explained how peritonitis caused sterility sometimes by thickening the serous covering of the ovaries, and so embedding them in false membranes, that it became difficult, or impossible, for the ripe follicle to burst, and let fall the germ. Sterility, however, still more frequently depends on the occlusion of the distal ends of the oviducts, or on the permanent adhesion to some portion of the pelvis, so that the germ cannot be conveyed to the womb. In this way many women become sterile who are not so reputed, because they have had one or more children previous to an attack of pelvi-peritonitis. Sometimes the womb is so tightly bound down by adhesions, that its development after impregnation is prevented, and abortion ensues as often as conception takes place.

ART. 166. — *A modified operation for Vesico-vaginal Fistula.*

By Dr. COGHILL, Demonstrator of Anatomy in the University of Glasgow.

(*Lancet*, May 7, 1859.)

In this case the difficulty presented by the protrusion of the bladder was overcome, and the process of paring the margin of the fistula rendered quite easy by using spatulae of steel ribbon, about half an inch broad, and extemporized for the occasion. Annealed iron wire was passed by means of Simpson's tubular needle, and the ends of each suture were then passed through the eyes of the *twister* (an ingenious contrivance first proposed by Dr. Coghill), and the suture fixed by giving two or three turns to this instrument. The method of operating in question resembles in principle the original operation of Dr. Simpson, rejecting, however, the clamps of silver bars to which the wires were fastened on each side of the wound, as in the ordinary quilled suture. Dr. Coghill, indeed, dispensing with all clamps, bars, buttons, or circular splints, merely brings the edges of the wound into contact by a wire suture, and keeps them in contact by twisting the ends of the wire upon themselves. Dr. Coghill, moreover, only uses one simple convex-bladed knife in the cutting part of the operation, so that he greatly simplifies matters. The case was perfectly successful, the sutures being removed on the ninth day.

REPORTS
ON THE
PROGRESS OF THE MEDICAL SCIENCES.
July—December, 1859.

THE intention of the following Reports is to pass in review the principal additions to each department of Medical Science, which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

I.

REPORT ON PRACTICAL MEDICINE.

Lectures on Pathological Anatomy, delivered at Guy's Hospital. By SAMUEL WILKS, M.D., F.R.C.P., Assistant-Physician to the Hospital. (8vo, London: Longmans, pp. 480, 1859.)

OF all the branches of science connected with medicine, morbid anatomy is the one which of late years has at once received the greatest amount of attention and most amply repaid the labor bestowed upon it. Dr. Wilks, moreover, deserves to be most honorably mentioned among the chief of those who have labored most assiduously and successfully in this department of knowledge. For several years he has had at command all the resources of one of the largest hospitals in London, and, in addition to the direct charge of a splendid pathological collection, he has himself recorded the results of between 2000 and 3000 post-mortem examinations. During the greater part of this time, also, he has had the opportunity, as a lecturer, of teaching himself while teaching others, and in this way he has acquired (what is not easily acquired, the power of thinking definitely, of seeing accurately, and of describing clearly and succinctly. In a word, the lectures themselves, as we might expect from the qualifications of the lecturer, may be fairly taken as representing the actual state of our present knowledge in the subject of pathology, and we cordially join in the praises which have been awarded to them on all sides.

A few extracts on subjects of special interest will serve to show the style and character of the book.

In treating of tumors of bone, those now recognized as "myeloid" are thus described:

"These tumors, as far as our present experience reaches, spring up in the interior of bone, and consist of similar elements to those which constitute the medulla in the fetus, these elementary cells being again produced under a morbid process in adult life from the tumors seen in these parts. As the growths are peculiar to bone-formation, they do not, I think, occur apart from the human skeleton, and do not, when simple, recur, or become propagated. (A case is given in a note, however, in which, after amputation for myeloid disease of fibula, the disease recurred in the stump, in the shape of perfect myeloid tumors, and after death perfect and simple myeloid tumors were found in his lungs.) The disease consists in the production, within the interior of the end of a bone, of a quantity of soft medullary matter, consisting of a structure no longer met with in any of the tissues of the adult, but, from constituting the fetal marrow, is termed *myeloid*. From some cause, may be an injury, an undue action is excited at the end of a bone, and a production of these peculiar cells takes place. Beginning in the centre, the growth continues until the shell of the bone is reached; this is gradually absorbed, and at length the periosteum is pushed before it, and a tumor is formed; the latter at the same time becoming thickened and forming its investing membrane. As this process occurs near a joint, the disease reaches as far as this, and then ceases, and thus generally the cartilages are found perfect on the end of the tumor; on the opposite side the jagged end of the bone is seen entering its middle, and connected with it by the periosteum, which passes off the shaft to form the sac. When the tumor is examined, after recourse has been had to amputation, it is seen to be quite round, and occupies the end of the bone, consisting of myeloid matter enclosed in a membranous sac, continuous with periosteum, the cartilage

and joint being perfect on one side, and the jagged end of the shaft entering the tumor at the other. If the tumor should be allowed to grow very large, the sac might give way and the joint be involved, but this is rarely seen. There is a disposition in all cases for the sac to become osseous, or even form a complete bony case, as is seen in this myeloid tumor of scapula. In some the myeloid matter is quite soft, so that if taken out a mere sac is left, as seen in several specimens. In others processes of fibre proceed from the periosteum, split up into a reticulum, constituting a fibro-myeloid, while in others cysts are present, and these may be called cysto-myeloid. The material itself is quite peculiar, and can scarcely, when once seen, fail to be again recognized. It is soft and dry, not at all fibrous, but breaks up like cancer, at the same time is dry and emits no juice, being of the consistence and general appearance of colored blanc-mange; this color is very peculiar, and gives the tumor a red hue, hence the spleen-like tumors of older writers. It is somewhat like that of plum-juice, and is different from any other colored tissue in the body. There is often some blood extravasated in the tumor, which may increase the redness, but when this is removed the myeloid matter itself is seen to have this morose hue. The microscope can immediately detect the peculiarity of the structure, exhibiting very large cells, which have branching processes proceeding outwards in all directions, and which apparently join one another. The cells are of various sizes, some of the largest holding as many as fifty nuclei or more, of an oval shape, and containing nucleoli" (p. 87).

The remarks upon a subject which has recently attracted considerable attention, will be of especial interest to those of our readers who live in aguish districts.

"Pigmental changes in the spleen and other organs as a result of intermittent fever—I may take this opportunity of mentioning to you the very remarkable observations made by some Continental pathologists in reference to this subject.

"Vogel has shown that in persons who have died of intermittent fever the spleen has been found of a dark color, from the presence of pigment, and that the blood has contained similar coloring matter. It has been shown, also, that other organs may be similarly affected, and Frerichs, who has lately been in London, informed me that, having paid especial attention to the subject, he has found all organs of the body discolored in those who have died of intermittent fever; indeed, wherever the pigment circulates, there it will collect in the capillaries, and thus the brain, kidneys, liver, &c., may be found containing it. I mention the subject under spleen because this organ is intimately connected with intermittent fever, and we have long recognized the existence of anemia and diseased states of the blood in splenic disease, but, at the same time, I do not know that this pigment-deposit is due to any derangement of the spleen, or whether it may not arise from some primary affection of the blood, though probably the former is the case. Here is a drawing from Bright's 'Medical Reports,' which undoubtedly represents this affection. The case is here described as J. C., an old man, who, accompanied by his wife, set out from Horncastle, in Lincolnshire (an aguish locality), in August, 1829, for London, and, having walked all the way, fell ill immediately on his arrival, and was brought to the hospital in a dying state, apparently with fever. On post-mortem examination the brain was found as here represented, having its surface or cineritious structure of the color of black lead, but the section showing the medullary part unaffected, except the pumeta vasculosa, which were also of this dark color. Within the corpora striata were found of the same blackish color, and the vessels were filled with dark blood. The spleen was also of a dark hue. The wife's brain and other organs were also dark, though less so than those of her husband."

Who will not read the following paragraph with interest, and feel the truth of the lesson it points out?

"The decease of Dr. Bright since the above was written compels me to remind the student of the merits of this great physician, which serve for the imitation of us all. I allude to his truthfulness, and his publication of all the facts relative to the cases which came before him, even without knowing their im-

port, or that they contained any discovery. This he did in his account of renal disease, subsequently in describing pancreatic disease, and now, after thirty years, we can make use of one of his cases, of the pathology of which he was ignorant, but of which he gave all known particulars, even to the place whence the patient came, which is now the most important part of the history, and yet, probably, been read by hundreds of persons without any conception that the mention of such a fact could bear on the nature of the case." (p. 345.)

The second part of the book is devoted to the brief consideration of the "Association of morbid conditions," with a view to showing how the various structural changes are combined in the body, "for," as the author remarks, "you must be aware that a simple demonstration of the morbid anatomy of particular parts is only one step towards a knowledge of pathology; but a grouping together of the various diseased structures, such as are found naturally associated, raises us a step considerably higher—so that I believe a thorough acquaintance with the various morbid processes, in any particular case, would lead us very close upon its true pathology." The indications given by the appearance of the body in deaths from different causes are then described, and as an illustration we may quote an instance of what may be called "*post mortem diagnosis*," the clearness of which must strike the most inattentive reader.

"A lad came one day for admission, and died in the taking-in room. Before hearing from his friends we proceeded to examine the body. On percussing the chest, the left side was found tympanitic, indicating a pneumo-thorax, but then the body was not wasted sufficiently for phthisis, and this sign suggested, therefore, an acute disease of the lung, which had ended in rupture of the tissue; as this, however, does not occur except in lobular abscess from pyæmia, a local cause was looked for as a source of purulent infection, when all that we discovered was a discharge from the ear, and on placing the fingers on the neck, a general swelling was found, and an induration of the jugular vein; it became then tolerably clear that a chronic otitis, with diseased temporal bone, existed; that the lateral sinus had become involved; that phlebitis had extended down the jugular vein to the heart, and so the lung had been affected with abscesses, one of which had burst and caused the boy's death by pneumo-thorax. (On opening the body, the morbid conditions were found true in every detail, and the whole history was exactly as suspected)" (p. 433).

The chapter on tumors, &c., will probably be criticised more freely than any other part, but for clearness and simplicity we think there can be only one opinion respecting it.

"These terms (tumors, new growths, and adventitious deposits), apply to different physical and pathological conditions, but yet can scarcely be separated from one another; a tumor denotes any swelling, though it is generally intended to apply merely to formations of new tissue, and hence the more recent appellation, new growth; while, if this new material be diffused through an organ, the term is no longer applicable, and some epithet denoting the change or degeneration of the structure is adopted instead; it must be remembered, however, that it is not always easy to draw a line between these, and that cancer, tubercle, fat, fibrous tissue, &c., may be diffused and isolated in the same case."

"These varieties (referring to a list of names for tumors, &c.), do not so much contain in themselves peculiarities, as they differ according to the circumstances of their growth, and therefore the great object of the pathologist is to discover what interpretation to put upon the various forms, to discover what are the essential ingredients, what the secondary, or how much they are dependent on a constitutional and how much upon a purely local cause. In the first place, all such adventitious products are morbid: for, while the organism is healthy, all the nutrient fluids of the body are employed in maintaining the integrity of the tissues, which, however complex they may be, are constantly being renewed; let there be an injury to a part by which a breach of surface occurs, a plasma is thrown out to heal it; but then the affinity is in great measure lost between this fluid and the original structure, for although the disposition remains to repair the breach by producing a material like that from which the blastema has issued, yet this can only be accomplished within

certain limits; thus visceral tissue is not reproduced. When, then, a blastoma proceeds from any part, whether the cause be purely a local one from injury, or have altogether a constitutional origin, its tendency in the soft tissues is merely to develop into the most elementary forms; but even within these limits the greater the tendency to develop and not to remain as a simple structure, the nearer the approximation to a healthy state, and the more innocent the character of the growth. Thus, in most of the softer structures of the body, the main constituents of adventitious deposits are cells and fibres of various forms and combinations: the purely cell-structure being analogous to cancer, and malignant, while the fibrous shows a tendency less malignant. Supposing now, that, owing to some morbid condition of a part, a blastoma is thrown out which shall fibrillate, a *simple fibrous tumor* is produced. . . Now suppose, again, this plasma should form nuclei and cells, and these should rapidly be produced and have no tendency to fibrillate, a large mass of useless structure is seen which can receive no other name than cancer. *These cells are not, I believe, peculiar, but are simply embryonic cells, which are constantly being produced without any object, and therefore display a vicious or malignant condition of system. I do not think they can be distinguished from many healthy secreting-cells, and that the microscope is insufficient to declare their nature from simple inspection; but the fact of a tumor being composed of these rapidly growing elements is sufficient to indicate its malignity.* Now, for a third time, suppose an intermediate condition—a plasma which forms cells having a disposition to change into fibre, a tumor is produced which is seen to be composed of rapidly growing nucleated fibres. It was an examination of such tumors by the microscope that threw discredit on the instrument when it first came into use, for it could only give a doubtful answer about them; this, however, showed that growths were being examined which were intermediate between cancers and innocent tumors, and were, in fact, semi-malignant—they are styled recurrent or malignant fibroid.

"These you may regard as the three great divisions of tumors—innocent, malignant, and semi-malignant: but they pass into one another, and various grades of them, no doubt, exist. Thus cancer, or the cell-growth, for instance, is divided into scirrhous and medullary: the former being hard, and the latter soft, or resembling a piece of brain, whence its name encephaloid—being a vascular, soft structure, giving out a milky juice when squeezed. These two forms do exist, but at the same time the hardness and softness of a cancer depends very much upon the texture of the organ in which the adventitious deposit takes place, and thus the hard cancer of the breast is more dependent on the natural fibrous texture of the gland than upon any hardness inherent in itself. The most rapidly growing cancer is the *medullary*, and this, when of the acute form, is soft, and often contains nothing more than nuclei—nuclei being probably formed before cells. . . . If the cells should have a tendency to sprout out, and if the plasma fibrillates into a firm matrix, the tumor is necessarily harder, and a *scirrhous cancer* is produced; this is of slower formation and less malignant than the medullary. The fibrous and fibre-nucleated tumors are innocent, but the recurrent fibroid are of a semi-malignant character. They were formerly classed with the cancers, but they are found merely to recur at the same spot after removal, unless, indeed, they have existed for a long time, when they may be propagated throughout the body like a cancer, and are therefore sometimes styled malignant fibroid. In appearance they resemble somewhat the cancers, but are firmer, and give out only a serum instead of a milky juice, have a fibrous structure when torn, and display nucleated fibre by the microscope. I take these three forms of tumors as the types upon which all others are formed—the innocent and malignant at the two ends, and semi-malignant between them. All others, I think, owe their character to a local cause which modifies their growth, &c." (pp. 467-8.)

These extracts will be enough to show that the work before us will take rank as a standard authority on the subject of pathology.

Gulstonian Lectures on Fever and Inflammation, delivered before the Royal College of Physicians of London. By WILLIAM ADDISON, M. D., F. R. S., Fellow of the College. ('British Med. Journal,' April, May, and June, 1859.)

The chief points of the doctrine set forth in these lectures are—

That the fluid of the blood has a pathology distinct from that of the corpuscles; and

That forms of inflammation or of local poisoning, without fever, make their appearance when the disorder is confined to the fluid of the blood, and that forms of fever are produced only when the corpuscles are disordered.

Numerous and various substances, Dr. W. Addison endeavors to show, may circulate through the body dissolved in the fluid of the blood, and the cellular elements of the body (including the corpuscles of the blood) have various affinities, and oppose various degrees of resistance to injurious matter. If from distemperature of the fluid of the blood the common tissue of the body be first disturbed, forms of inflammation first arise; if some special parenchyma be disturbed, the phenomena are those of local poisoning, delirium, coma, diuresis, purging, sweating, salivation, &c.; if the corpuscles of the blood be primarily or secondarily disordered, fever is the result.

If these views be established, Dr. W. Addison will have contributed in no small degree towards an interpretation of the various phenomena of fever and inflammation. At the present moment, however, the author is at the beginning rather than at the end of his labors, and we have only to direct the attention of our readers to what is going on, and to express our sympathy in the work and our hope as to its results.

On the simultaneous existence of two or more Diseases originating in specific morbid Poisons. By Dr. MURCHISON, Assistant-Physician to King's College Hospital. ('Med.-Chir. Rev.,' July, 1859.)

There is a prevalent belief, originating from no less an authority than John Hunter, that no two of those febrile diseases which are thought to depend upon the introduction of a morbid poison into the blood can exist in the system at one and the same time. At different times, however, many isolated instances, conclusive as to the incorrectness of this belief, have been recorded in the periodical literature of the day, and now Dr. Murchison does the profession the good service of collecting these instances together, and of adding some additional facts observed by himself. The paper in question is arranged in sections, showing the possible coexistence of variol and scarlatina, of variola and rubella, of variola and roseola or erysipelas, of variola and pertussis, of variola and varicella, of variola and vaccinia, of vaccinia and rubella, of vaccinia and pertussis, of vaccinia and varicella, of rubella and pertussis, of variola, rubella and pertussis, of scarlatina and rubella, of scarlatina and typhoid or pythogenic fever, of typhus and pythogenic fever. Dr. Murchison's remarks on the possible coexistence of the two last-named affections are of much importance.

The doctrine of the compatibility of two of the exanthemata has an important bearing upon that of the non-identity of typhus and pythogenic fever. They who maintain that the poisons of the two fevers are identical, have appealed triumphantly to certain cases in which they have observed the eruptions of the two fevers to coexist. Now, allowing for a moment that the facts in all these cases have been correct, the conclusion, as which have been drawn are based upon a doctrine which is utterly fallacious. The coexistence of two eruptions no more implies an identity of the two diseases, than it does in the case of variola and scarlet fever, or of scarlet and pythogenic fever. But there can be little doubt that, in the majority of cases, the facts themselves, from the manner in which they have been described, must be viewed with no small distrust. On few subjects does so much confusion prevail in the profession as with regard to the eruptions of continued fevers. A very common mistake is to imagine that petechiæ constitute the characteristic eruption of typhus, a mistake which has been strengthened by 'petechial fever' being one of the appellations applied to the disease; and it has been argued, from a patient presenting both 'rose spots' and 'petechiæ,' that the eruptions of pythogenic

fever and typhus have coexisted. But petechiæ do not constitute the characteristic eruption of typhus; and they are not with in the course of pythogenic fever, in the same way as they show themselves in the course of variola, scarlatina, and many other affections. All they who have had much practical experience in studying both typhus and pythogenic fever, will admit that it is excessively rare to find the *menstru* eruption characteristic of the one, coexisting with the *rose spots* characteristic of the other. In my essay upon the 'Etiology of continued Fevers,' published in the 'Medico-Chirurgical Transactions' (vol. xli, p. 275), I expressed an opinion that such a coexistence was possible; but I maintained then, as I do now, that no argument could be based upon such a coexistence as to the identity of the typhus and pythogenic poison, any more than we should employ a similar argument to show that variola and scarlet fever, or scarlet fever and pythogenic fever, were one and the same. I shall now proceed to detail the facts which testify to the possibility of typhus and pythogenic fever coexisting.

"Such facts might be naturally looked for under circumstances in which a patient laboring under the one disease has been exposed to the contagion of the other, as, for example, in the London Fever Hospital. When the doubtfully contagious character of pythogenic fever (already alluded to) is remembered, it will not be wondered at that patients admitted with typhus, have seldom contracted the former disease. During a period of ten years I have only been able to find the notes of two such cases. One was that of a female, aged twenty-two, who, with seven others of the same family, was admitted with well marked typhus, and who, in the third week of convalescence, had an attack of pythogenic fever, the symptoms of which, however, were mild and not very characteristic. The second case will be shortly alluded to. On the other hand, it has been by no means rare for patients admitted with pythogenic fever, to contract typhus during their stay in hospital. But, in most cases, this has been in the fifth to eighth week of convalescence from the first fever, and two or three weeks after the patients have been removed to the convalescent ward, a circumstance which is explained by the patients in the convalescent ward being thrown into more intimate relations with one another, and by typhus being avowedly more contagious during convalescence than during the height of the disease. In the following instances, however, the eruptions and other symptoms of the two diseases were almost contemporaneous.

"Illustration XLIX.—A female, aged twenty-two, had an attack of pythogenic fever, which was attributed to the putrid emanations from a bad drain. She was admitted into the London Fever Hospital. The primary attack lasted three weeks. After a fortnight she had a relapse, with a return of the 'rose spots,' and the day after this there was a subcutaneous 'typhus mottling,' along with drowsiness, heaviness, and other symptoms of typhus.

"Illustration L.—A male, aged twenty-five, was admitted, with well-marked pythogenic fever. On the twenty-seventh day there was a great aggravation of the symptoms, with much headache and stupor; and, in addition to several rose-colored spots, there was a distinct subcutaneous mottling. The diarrhoea still persisted. Four days later the subcutaneous mottling had become developed into a well marked typhus rash. The patient recovered.

"Illustration LI.—A female, aged twenty-seven, was admitted on the third day of an attack of typhus. The rash began to fade about the fifteenth day, but there was no abatement of the general febrile symptoms. On the eighteenth day there was watery diarrhoea, tympanic abdomen, and several rose spots. The latter symptoms continued for about a fortnight, after which the patient gradually recovered.

"It not unfrequently happens that patients are exposed to the poisons of both typhus and pythogenic fever before their admission into a hospital. In my researches, elsewhere published, I have endeavored to show that the poison of pythogenic fever is generated in the emanations from decaying animal matter, and that of typhus by the respiration of an atmosphere charged with the exhalations of living bodies, although in the majority of cases the latter disease is propagated by contagion. Now, if a certain poison can generate one group of symptoms, and another poison generate another, surely it is but reasonable to

expect that a combination of the two poisons may give rise to a morbid condition of an intermediate character, without its being necessary to conclude from the existence of such a hybrid affection that the first two morbid conditions have been merely different manifestations of the same poison.

"The three following instances were made the subject of repeated and most careful observations by myself:

"Illustration I.II.—In December, 1857, a girl, aged sixteen, was admitted into the Fever Hospital from 17 Windmill Row, Lambeth; ill a week. Her body was covered with an unmistakable mulberry (typhus) rash, and she presented all the usual symptoms of typhus—dry, brown tongue; confined bowels; heavy, confused expression; small pupils; and low, wandering delirium. The case attracted particular notice, as typhus was at that time very uncommon. Two days after the symptoms underwent a complete change. The mulberry rash (which was certainly not the scarlet rash which occasionally precedes the eruption of pythogenic fever) faded, and was succeeded by rose spots, which came out in successive crops for more than a week, and were accompanied by diarrhoea and abdominal tenderness. The tongue became moist and red; the pupils dilated; and the drowsiness and wandering vanished. The girl was a hawker; for some weeks had been very destitute, and a fortnight before she had slept for two or three nights at another house, in the same bed with a girl who had 'fever.' This second girl, with her mother and sisters, was admitted into the Lambeth Workhouse; but the father and brother were admitted into the Fever Hospital with well-marked typhus. On the other hand, Dr. Odling, the officer of health for Lambeth, informed me that the courtyard in front of No. 17 Windmill Row, was badly paved and badly drained; and that, although the cesspools in the house had been done away with the habits of the inmates had rendered the privy arrangements as insalubrious as before. The girl was therefore exposed both to the contagion of typhus, and to the causes which there is reason to believe generate pythogenic fever.

"Illustration I.III.—A man, aged twenty, a street hawker, was admitted into the Fever Hospital, October 17th, 1858, from 7 Feathers' Court, Drury Lane. This man had diarrhoea, and the characteristic tongue of pythogenic fever, but on the other hand (what is more peculiar to typhus), he had delirium coming on so early as the third day. From the eighth up to the twenty-second day he had distinct 'rose spots' coming out in successive crops; and, in addition, there was from the seventh to the eleventh day a faint mottling on the arms and trunk, precisely similar to the eruption of typhus. This man's brother and sister were both laid up at home with fever. Both had diarrhoea, and in both the body was covered with an eruption, compared by the mother to that of measles. Now, pythogenic fever was at the time very prevalent in London, so that it was not to be wondered at if the patients should be exposed to its exciting causes; but typhus was scarcely to be met with, and it became interesting to determine whether these patients had been exposed to the causes which are known to generate it. In the first place, it was ascertained that they were very destitute, and destitution is known to be the great predisposing cause of typhus; and secondly, the room in which they lived was overcrowded—five adults sleeping in a room seventeen feet square and eight feet high, with one door and one window, so that, making no allowance for furniture, each individual had only about three hundred cubic feet of space. There was no means of ventilation. The single window was seldom or never opened.

"Illustration I.IV.—A girl, aged six, was admitted into the Fever Hospital, September 14th, 1858, from 3 Horse-shoe Court, Cow Cross, Holborn. On the eighth day of her illness rose spots were observed, perfectly characteristic, lasting for a few days and then succeeded by others up to the eighteenth day. On the ninth day, and lasting for four days, in addition to these rose spots, there was a distinct subcutaneous mottling, not disappearing on pressure, and precisely resembling the eruption of typhus. The general symptoms were resembled those of typhus than of pythogenic fever. There was no diarrhoea, and throughout there was much tendency to stupor and slight delirium. Three other children from the same family were admitted about the same time into St. Bartholomew's. All of them, according to the mother, had a rash resem-

bling that of measles; but all had diarrhoea, and in one boy rose spots were noted during his stay in St. Bartholomew's. Pythogenic fever at the time was very prevalent in London. Typhus was almost unknown; yet in the house from which these patients came the causes known to generate typhus existed in a marked degree. The house itself was situated at the top of a closed court, and the room in which the father, mother, and five children slept was at the top of a narrow stair in this house, and measured fourteen feet in length, thirteen and a half in breadth, and seven and a half in height, a space which, even making no allowance for furniture, allowed only two hundred cubic feet of air to each individual.

"Lastly, it seems not improbable that a co-existence of two different diseases may have accounted for the anomalous symptoms observed in the two following instances:

"Illustration LV.—An outbreak of fever occurred in autumn, 1857, in Dudley street, Paddington, in which I am assured by Dr. Sanderson* that there were some cases which presented the characters of both typhus and pythogenic fever, including the presence of the two eruptions. I have elsewhere shown that in Paddington there are various causes to account for the generation of pythogenic fever, and that typhus is extremely rare. It becomes interesting, then, to ascertain under what circumstances typhus, or something resembling it, may there originate. Now, in the houses in which these 'mixed cases' occurred the two causes which I have supposed to generate typhus and pythogenic fever were present in a marked degree. First, the residents were principally dustwomen, and the house was daily stocked with selections from the street-sweepings of the metropolis, such as old grease-pots, &c., materials sufficiently prone to decomposition in hot weather. But, secondly, these two houses were overcrowded to such a degree that compulsory measures had to be adopted to diminish the number of inmates. Cases of fever occurred at the same time in other houses of the same street, which was not overcrowded; but these were pure examples of pythogenic fever.

"Secondly, Illustration LVI.—M. Landouzy† has given an account of a remarkable fever which prevailed at the gaol at Rheims, in the autumn of 1840. Many of the symptoms during life, including the eruption, were those of typhus; but the intestines after death presented the lesions characteristic of pythogenic fever. Now, from the locality and the season of the year, one would have expected the latter; and in addition to these causes, we are informed that there was a most disagreeable odor in the gaol (proceeding from the grease of the woolen fabrics manufactured by the prisoners?). That the fever was really pythogenic fever is proved by the lesions found after death. On the other hand, a cause was not wanting to account for the symptoms of typhus during life; and, it must be remembered, that a copious mulberry rash would entirely mask a few rose-colored spots, even if these were present. The circumstance to which the fever was mainly attributed was the overcrowding of the prisoners. The number which the gaol was calculated to hold was from one hundred and thirty to one hundred and fifty; but a month or two previous to the outbreak of the fever this had been raised to one hundred and ninety.

"The illustrations cited in this essay might have been greatly multiplied; and it might have been shown that the paludal poison, and the poisons of syphilis, the plague, cholera, and influenza, are compatible not only with one another, but also with the poisons of the diseases already enumerated. Enough, however, I trust, has been done to prove that the doctrine of the incompatibility of two or more contagious diseases is erroneous; and consequently that, upon the mere occasional coexistence of the peculiar eruptions of typhus and pythogenic fever, no argument can be based as to the identity of the poisons of these two diseases."

* Dr. Sanderson has had ample opportunities of studying the two fevers at the London Fever Hospital.

† Archives Gén. de Méd., *tristement série*, vol. xiii. p. 7.

On the nature and treatment of Gout and Rheumatic Gout. By A. BARRIE GARROLD, M.D., F.R.S., F.R.C.P., Physician to University College Hospital, and Professor of Materia Medica and Clinical Medicine in University College, &c. (Post 8vo, London: Walton and Maberley, pp. 601, 1859.)

For the last twelve years, as is well known to many, Dr. Garrod has been patiently and successfully engaged in investigating the pathology and treatment of gout, and many are the important facts which we owe to his industry and skill. We owe to him, indeed, almost all the light which has broken upon this subject during this time. All this will be readily admitted by those who have made themselves acquainted with the detached communications from the author which are already before the public. It is difficult, however, to appreciate the full importance or to perceive the exact meaning of papers appearing thus piecemeal, it is always a troublesome and tedious matter to have to hunt for information scattered in an informal state in different volumes, and therefore we are glad to find that, at last, Dr. Garrod has embodied his experience in a connected form. As to the book itself, no pains or expense have been spared in "getting it up," the letter-press, which is laid in no ordinary degree, is illustrated by several beautiful colored plates as well as by numerous wood-cuts, and our impression on reading carefully through the whole was one of unmixed satisfaction.

The author, in the first place, gives a sketch of the views held by the ancients concerning gout. From this sketch it appears that most of the ancients, even so far back as Hippocrates himself, possessed considerable and very accurate knowledge of the various symptoms of the disease, and of its causes and progress, but that their ideas of its intimate nature were necessarily imperfect, owing to the state of those collateral sciences which are necessary for the elucidation of the accompanying phenomena. Their treatment also, for a similar reason, was completely empirical, and often of a baneful character; still, although their pathology was of a most imperfect kind, an idea was very generally prevalent that the proximate cause of the manifestation of the symptoms which constitute gout was the presence of a morbid matter in the blood, which became as it were, distilled into the joints. From the time of the ancients until very recently it would seem that little advance had been made in the pathology of gout, although many writers, and especially Sydenham, did much to perfect its description, and to investigate the course which the affection ordinarily pursues.

At the end of the introductory chapter Dr. Garrod gives some quotations from a remarkable poem or comic play, entitled 'The Tragapodagra,' ascribed to Lucian, in which are found delineated some of the more important features of the disease—as the time of year at which the affection more commonly makes its appearance, the parts affected, the impropriety of interfering with the disease by local treatment, the tendency of the gouty to resort to quacks, and so forth. There is one point in which the opinions of the ancients seemed to differ much from those held a few years since, namely, with regard to the favor with which gout was regarded; in ancient times it was common for its victims to attempt to pass it off for some other disease, as, for example, a sprain or other injury, whereas now it is often looked upon with favor by those who salve themselves with the remark of Sydenham, that gout, unlike other diseases, kills more rich men than poor, more wise than simple. Our space will not allow us to attempt to go through, even cursorily, the various chapters contained in the work before us, and it must suffice to say, that all the phenomena of the disease, both in its acute and chronic forms, are fully detailed in the second and third chapters, and great stress laid upon the formation of chalkstones, from their first appearance as small protuberances containing a milky looking fluid to their subsequent development and consolidation into the hardened masses which so seriously disfigure the patient, put a bar to locomotion, and embitter life. Dr. Garrod also remarks that the cartilages of the ears are parts particularly liable to be affected with these deposits, apparently more frequently than any other external part of the body, and here also their progress can be more easily watched and the changes in them investigated.

The author shows that, at first, the contents consist of a clear fluid, containing innumerable crystals of urate of soda, which, after a time, become aggregated together, forming masses, and at last all the fluid portion becomes absorbed, and the concretion, if on the cartilage of the ear, not unfrequently detached; if more deeply seated, it may either remain in the concreted state or give rise to surrounding inflammation and the formation of an abscess, and thus become discharged. Dr. Garrod remarks that the frequent occurrence in this locality may be often advantageously employed in diagnosis, as concretions of urate of soda are never produced in any other disease than true gout. He also observes that he has never seen a case in which gouty inflammation of a previously healthy structure was followed by suppuration, and ascribes the few recorded cases in which it has been supposed to occur to the deposition of urate of soda in the tissues from previous attacks, and to the formation of matter around this deposit, which then acts as a foreign body. In connection with this subject we may remark that Dr. Garrod, in speaking of the composition of chalk-stones, gives it as his opinion that they consist essentially of urate of soda, that in fact the crystals of which they are composed are simply this salt; but that, after a time, phosphate of lime and carbonate of the same base may be present from ordinary inflammation causing the deposition of these matters around the urate of soda, as it is so frequently found to be the case in phthisical cases where tubercles become converted into cretaceous masses. In the analysis of gouty concretions other components are commonly found, but these arise from the presence of the tissues in which the deposition has taken place. Throughout the chapters devoted to acute and chronic gout, the various phenomena are fully illustrated by numerous cases which have occurred in the author's practice.

The nature of the changes which the blood undergoes in gout is entered into at some length, for it will be remembered, as we have had occasion to notice in this journal, that Dr. Garrod, as far back as 1848, read a paper before the Medical and Chirurgical Society, announcing the discovery of uric acid in the blood in gout, and since that time other communications on the same subject have appeared in the 'Transactions' of the above Society, all confirming the conclusions he first arrived at, namely, that "the blood in gout always contains uric acid in the form of urate of soda, which salt can be obtained from it in a crystalline form;" and it is further stated that "from this time up to the present, now more than eleven years, I have been in the habit of examining the blood in this disease when opportunity has presented itself, now in at least a hundred cases," &c.

Dr. Garrod at first employed a chemical process for extracting uric acid or urate of soda from the serum, but afterwards suggested a method which can be employed with much advantage in clinical investigations, and which requires no knowledge of chemistry for its performance, as it consists merely in causing the crystals of uric acid to congregate around a fine fibre, like stone sugar on a string. This is effected by acidulating the serum of the blood with acetic acid, placing it in a flat glass dish, and leaving it to spontaneous evaporation. To ensure success several little circumstances require attention, for the details of which we must refer our readers to the work itself, where they are fully described. Dr. Garrod shows that not only the blood, but likewise the serum, effused from the application of a blister is rich in uric acid, and that recourse may frequently be had to this latter fluid as a means of diagnosis in difficult cases. The blood in acute gout appears to contain other morbid matters besides uric acid, as small amounts of urea, and also oxalic acid, which last acid can likewise be separated from the perspiration of gouty patients in the form of crystallized oxalate of lime.

Dr. Garrod, who has paid much attention to the urine in this disease, and gives the results of many hundred analyses, has arrived at conclusions differing considerably from those which have commonly been held upon the subject, for he has shown that in the majority of cases, and more especially when gout has become chronic, the quantity of uric acid excreted in the twenty-four hours is deficient, that is, below the average passed by the healthy subject, and that this becomes smaller and smaller, until frequently, in the very severe cases

accompanied with a larger amount of chalk-stones, the urine is literally free from this body, although the excretion of uric acid is so much influenced by gout, the uric acid is secreted pretty freely, and some analyses are recorded in which the author found this principle in proportions not very dissimilar to those excreted by healthy subjects under a similar diet. Traces of albumen were frequently met with in gouty urine, more especially when extensive deposits of the chalky matter had taken place.

To the morbid anatomy of gout Dr. Garrod has paid much attention, and the results of many examinations of gouty subjects have led to many important additions to our knowledge on this branch; for he has shown that a deposition of urate is not merely an occasional occurrence, as formerly supposed, but that every attack of gouty inflammation, however slight, leads to the same, in proof of which cases are detailed and drawings made exhibiting the crystalline salt in the cartilages and ligaments of joints which have been but once affected, and in a subject where the metatarso-phalangeal joint of one great toe had been the only articulation in the body attacked by the disease, thus demonstrating the constant occurrence of deposition in gouty inflammation, and (as this never takes place in rheumatism) forming a completely pathognomonic sign. Drawings are given showing the manner of deposition in the cartilaginous tissues, synovial membrane, and so forth. It is also shown that, by the prolonged action of warm water on alkaline solutions, the morbid matter may be removed from the interior of the tissues, which latter are then left almost unaltered. To prove that the deposits consist of urate of soda only the watery solution in which gouty cartilage has been digested is made to yield the salt again in the same crystalline form; its real nature is demonstrated by separate testing for both the acid and base. For some years it had been noticed that the white streaks were occasionally seen in the kidneys of subjects who had died with advanced gout, but Dr. Garrod has shown that they are almost constantly met with; in all cases save one he has found them, and in that exceptional case the patient had only suffered from two slight attacks of gout, and those confined to one great toe. The shrivelled kidney was almost always observed, except in very early cases, and these facts, it is supposed, account for the frequent presence of traces of albumen in the urine, and likewise for the defective excretion of uric acid from the blood.

With regard to the causes leading to and exciting gout, the author in most points agrees with other writers on the subject, but in one or two of them he insists more positively than is usually done, especially as to the little tendency which distilled spirits possess of causing gout, but the great influence of wine and strong malt liquors. The grounds for this opinion he finds in the great difference exhibited by different nations in their liability to this disease, gout being almost unknown among the whisky-drinkers of Scotland, and as common among the port-wine-lovers of England.

Although our space scarcely permits further discussion on this subject, we cannot help alluding to one very remarkable fact which Dr. Garrod has made out, namely, that the influence of lead is most powerful in inducing gout, that in 25 per cent. of the cases of gout which have come under his care in hospital practice, the patients were either painters or plumbers, or had, at any rate, been under the poisonous influence of lead. In explanation of this fact, it is shown that even in lead-colic and wrist-drop, occurring in subjects who have never experienced gout, the blood very frequently contains uric acid, and that even when lead is given medicinally it appears to have a considerable influence on the function of the kidneys, especially in its power of excreting uric acid. From what we have already stated, the view of the nature of gout held by the author may be surmised, but to the pathology of the disease he devotes considerable space, first giving the opinions of the ancients, then those more recently held, both by the advocates of the doctrine of the humoralists and solidists. Cullen's ideas are particularly alluded to and combated, and the results of the author's own investigations expanded, which may be thus summed up. It is essential for the production of gouty inflammation that the blood should contain a large amount of uric acid, but that its presence alone does not explain the paroxysm. In order that such should be produced, it is

necessary that a deposition of urate of soda take place, and this deposition Dr. Garrod is inclined to look upon rather as the cause than effect of the inflammation, for he brings forward much evidence to show that inflammatory action is rather antagonistic to deposition, or, in other words, that the inflammation has the effect of destroying uric acid, and thus purifying the system. The causes of the blood becoming thus loaded with uric acid are considered to be at least two in number; first, the abnormal formation of the principle, the result of derangement of the stomach and viscera concerned in the digestive process; secondly, deficient excretion, arising from loss of power in the kidneys. Dr. Garrod is inclined to look upon the disease, when the former cause is very prominent, as typical of the *rich man's gout*, but when the latter condition prevails, as partaking of the character commonly designated *poor man's gout*. For the various arguments in favor of these views of the nature of the disease, and for much other matter contained in the chapter on pathology, we must refer our readers to the work itself.

The treatment of regular forms of gout occupies considerable space, and is divided into the management of the acute and chronic disease, with separate chapters on the action of colchicum and the employment of mineral waters. In acute gout the author recommends, except in particular instances, that the diet should be very light, and chiefly amylaceous, with the free use of diluents, but the avoidance of alcoholic stimulants is strictly enjoined. As far as the medicinal treatment is concerned, he thinks the administration of some simple alkaline saline, combined with moderate doses of colchicum, and the use of mild laxatives, if called for, is all that is needed, but that in certain cases some modification of treatment may be required, and various questions may arise as to the propriety of using other means, such as local or general bloodletting, anodynes, or stimulants, &c.; and a full account will be found of the author's experience of these different remedies in the treatment of the affection. The action of colchicum is particularly dwelt upon. Dr. Garrod appears to have made a very careful investigation of the subject, and some hundreds of analyses of the effect produced on the urine and other secretions. From these he draws the following conclusions:

"1st. There is no evidence that colchicum produces any of its effects upon the system by causing the kidneys to eliminate an increased quantity of uric acid: in fact, when the use of the drug is continued for any lengthened time, it appears to exert a contrary effect.

"2dly. That from the observations above detailed, we cannot assert that colchicum has any influence upon the excretion of urea, or the remaining solid portion of the urine.

"3dly. That colchicum by no means acts in all cases as a diuretic, but on the contrary, it often diminishes the quantity of urine, especially when it produces a marked effect upon the secretions from the alimentary canal."

With regard to its therapeutic influence, Dr. Garrod considers that it exerts a specific power over gouty inflammation, and that the production of any sensible physiological effect is not essential: in fact, he deprecates its use to the extent of causing purging, sickness, or depression of the nervous system, considering that, when such are produced, the patient is apt to have a relapse of the affection; but on the other hand, when carefully prescribed, it has no tendency to prolong the gouty paroxysm or render the disease more chronic.

In the management of chronic gout, which is so important and so much more troublesome than the genuine acute disorder, Dr. Garrod, acting upon the knowledge obtained from the study of its pathology, lays much stress upon plans of treatment which he asserts, from his own experience, to be of great value: and after disavowing the value of various other methods, gives a sketch of his own, which he believes to be suitable to the majority of cases. This plan consists essentially of the use of very weak saline solutions, taken on an empty stomach, so as to ensure absorption, and not disturb the digestive functions: the choice of the salines he regards of great importance, and that they should be selected according to the peculiarities of the case, and changed from time to time. Soda and salt, he thinks, should not be indiscriminately prescribed. Experiments are given illustrating the different solvent properties of

the different salts, and showing that those of soda have little or no power of holding the uric acid in solution. Dr. Garrod also brings before the notice of the profession a new remedy, the carbonate of lithia, and he points out its advantages, both in gouty and calculous disease, arising from the great power it possesses of rendering uric acid soluble; the only bar to its employment appears to be the scarcity and high price of the salt; but, as he suggests, if the benefit be equal to what may reasonably be anticipated, the supply of the drug might be greatly increased, and its cost proportionally diminished. We cannot pretend in our limited space to give even a short outline of this subject, which occupies about one hundred and fifty pages, and it must suffice to say that the value of the celebrated Portland powder alkalies, ash leaves, tonics, and lastly the different mineral waters, as those of Vichy, Wiesbaden, Aix la Chapelle, &c., are treated of at length, and their medicinal powers fully discussed.

A long chapter is afterwards occupied in the consideration of the nature and treatment of irregular forms of gout, a subject beset with great difficulties, and upon which authors have written so obscurely. Dr. Garrod endeavors to lay down rules by which affections which are truly gouty may be distinguished from those depending on other causes. He then describes those forms named retrocedent gout, affecting the stomach, heart, or head, and the varieties often termed misplaced or anomalous gout, and gives instances from his own practice in which the digestive organs, heart, respiratory and urinary organs, as also the muscular and nervous systems, have been implicated.

The last part of the book is devoted to what is termed rheumatic gout, though Dr. Garrod believes that a disease which is really compounded of gout and rheumatism does not exist, but he does not deny the possibility of gout occurring in rheumatic subjects, or rheumatism attacking those who are of a gouty habit. He states, however, that under this name are included many diseases, as chronic forms of gout, chronic or subacute rheumatism, and besides these, a malady partaking essentially of the nature of neither gout or rheumatism, and often named chronic rheumatic arthritis, but which he proposes should be called *rheumatoid arthritis*. The distinctive characters of these different affections are carefully examined, and a table showing their differential diagnosis introduced, by which they may be distinguished from each other. The characters of rheumatoid arthritis are then described, as also what has been made out concerning its pathology and best method of treatment.

In conclusion, we would repeat the favorable sentiments we expressed at the beginning, and recommend our readers to get the book and form an opinion for themselves.

Cases illustrating the views of Dr. Brown-Séquard as regards certain points in the Physiology of the Nervous System. By Dr. OGLE, Assistant-Physician to St. George's Hospital, &c. ('Med. Chir. Rev.' Oct. 1859.)

Dr. Brown-Séquard may thank Dr. Ogle for so much additional evidence. The cases given, seven in number, are, with one exception, from the records of medical experience in St. George's Hospital. The main particulars are as follows:

CASE 1.—Dislocation of some of the vertebrae, and projection of bone into the anterior surface of the spinal cord, the posterior columns remaining entire; perfect loss of sensibility and power of movement in the lower limbs.

CASE 2.—Carcinomatous disease of the dura mater at the edge of the foramen magnum, encroaching greatly on the outer or white parts of the spinal cord; absence of any anesthesia of the skin as to tactile impressions.

CASE 3.—Fracture of the dorsal vertebra and sternum. Softening of the anterior and central parts of the spinal cord; the posterior columns entire. Loss of power of moving the lower limbs. Considerable anesthesia as regards pinching and pricking of the surface (but incomplete) of the integument of the lower limbs.

CASE 4.—Cyst of considerable dimensions in the right portion of the pons varii. Great loss of power of motion and of sensibility to pricking and pinching in the "left" arm and leg, and side of the trunk. Also numbness

and diminished sensibility of the skin of the "right" side of the face and nose, and of the "right" temple, with increased vascularity of the conjunctiva of the "right" eye.

CASE 5. — Extravasation of blood on one side of the median line of the pons varioli. Complete loss of power of movement in the muscles of the right arm and leg, and also of sensibility as regards pinching and pricking of the integuments on the same side of the body.

CASE 6. — Large masses of scrofulous deposit in the right portion of the pons varioli and medulla oblongata; general loss of muscular power; great numbness and "coldness" of the left arm and hand.

CASE 7. — Laceration of the cervical portion of the spinal cord, the left side being mainly affected, in connection with dislocation of the vertebrae; contractile sensibility of the skin interfered with, chiefly on the opposite (the right) part of the body.

1. *A practical account of general Paralysis, its mental and physical symptoms, statistics, causes, seat and treatment.* By THOMAS J. AUSTIN, M.R.C.S. (8vo, London: Churchill, pp. 225, 1859.)
2. *On General Paralysis.* ("The Journal of Psychological Medicine and Mental Pathology." Edited by FORBES WINSLOW, M.D., D.C.L. April, 1859.)
3. *On General Paralysis.* ("Traite des Maladies Inflammatoires au Cerveau." Par le Dr. J. Calmeil, Medecin en Chef de la Maison Imperiale d'Charenton. 2 vols. 8vo, Paris, 1859.)

It is not a little singular that, while the subject of general paralysis has received much attention from physicians in France, in England it has excited comparatively little interest; that while the literature of the subject is large and valuable in the former country, it is but scanty and of questionable importance with us. Not that the affection has been entirely neglected by English physicians, for, thanks to many admirable articles which have appeared from time to time in the "Journal of Psychological Medicine," we have generally been kept well informed as to the progress of thought and research respecting the disease among our Continental brethren; and, moreover, the subject has invariably received more or less attention in our systematic works on medicine. We heartily welcome, however, indications among the profession at home of a more active attention to this subject. We have noted lately, in reference to it, an article (still unfinished) by Dr. Harrington Tuke, in the "Asylum Journal of Mental Science;" also a very valuable article, of which the author's name is unstated, in Dr. Forbes Winslow's "Journal."

We have, moreover, to notify the recent publication of a distinct treatise on the disease, by Mr. Austin, formerly Medical Officer of the Bethnal House Asylum—a treatise of considerable interest, since it is, we believe, the first specific work on general paralysis which has been published in the English language. It is but just, however, to mention the publication, in 1848, of a critical essay, by Dr. J. M. Winn, which had originally appeared in the pages of the journal last mentioned, and which had been written *apropos* of M. Hubert Rodriguez's "Traité de la Paralyse Generale Chronique."

Mr. Austin's work and the article referred to in the "Journal of Psychological Medicine" require especial notice at our hands; and we propose, in addition, to terminate our report on this subject with an abstract of M. Calmeil's matured opinions respecting it, as detailed by him in his lately published work on inflammatory diseases of the brain.

1. Mr. Austin's work is almost entirely founded upon personal experience, and his vivid and accurate account of the symptoms and progress of the disease will prove of great value to those who have had little opportunity of observing for themselves. He describes at length, and very happily, the general progress of the cases which have come under his care; he treats numerically of the results of those cases, and endeavors to trace the etiology of the affection; he reports the progress and autopsies of twenty-six cases, and from these data he endeavors to arrive at a clear notion of its pathology; and, in conclusion, he gives an account of the treatment he has found most useful.

The post-mortem changes most commonly found in the brain of the cases examined by Mr. Austin, consisted chiefly in more or less manifest alteration in the central portions of the organ, and particularly in the *thalamus optici*. The changes in the thalami he would refer to one of four conditions: "1st. To disorganization or softening. 2d. To degeneracy with or without induration. 3d. To atrophy, diminution of size without apparent histic change. 4th. To vascular changes without any recognizable structural lesion, to hyperemia with numerous exuding puncta, to anemia with many empty channels" (p. 183). Upon the localization of these changes in one or other thalamus, Mr. Austin is disposed to build a theory of the immediate causation of some of the most marked alterations in the mental symptoms of the disease, attributing the melancholic mania which occasionally accompanies it to pre-eminent affection of the right thalamus; the elated mania to affection of the left. He has also attached certain peculiar pathological and physiological speculations to the affection of the irides often noticed in the progress of the disease. These speculations are certainly ingenious, but they are founded upon a very narrow basis. His account, however, of the various deviations from the normal pupillary condition which are observed in general paralysis is very interesting. He writes:

"The most remarkable of these is that condition of the iris which has been aptly termed 'the pin-point pupil.' It is principally remarked during the first stage of the malady. The iris is firmly contracted to the size of a pin's point, and its mobility is destroyed, vision being unimpaired. This pin-point condition is rare. I have little doubt, however, that it will be ascertained to be one of the *earliest* symptoms of the first stage of general paralysis. The next form is that in which the iris is markedly contracted and motionless, though the contraction is less than in the pin-point condition. This symmetrical and permanent contraction is not uncommon. The cases in which the pupillary symmetry is not strictly maintained, nor the power of motion quite destroyed, are, however, far more frequently met with. In these examples the pupil is rarely round, but rather irregularly angular. The pupillary area may be equal, though the inner margin of the iris be slightly and dissimilarly irregular in both eyes. Sometimes the pupil is permanently midway between contraction and dilatation, very sluggish in its movements, trapezoidal or triangular, and not uniform in the two eyes. The inequality in these instances, though real, is trifling, and though it merit, does not compel, attention.

"The second group of pupillary forms comprises those cases in which the want of symmetry is marked, concomitant contraction of the iris not being a leading feature. Thus, both pupils may be of moderate size, their margins round and regular, one, however, being clearly the larger. In many instances, this disparity is most conspicuous. In some cases the affected pupil is obliquely flattened, so that the margin, though regular, is no longer round, but obliquely oval, elliptical, or gibbous. The axis of the pupil is by this flattening completely changed; instead of being directly backwards towards the bottom of the orbit, its direction is obliquely upwards and outwards, or more rarely upwards and inwards. For these altered pupillary axes, converging and diverging, appear appropriate terms. Now and then the pupil is flattened above and below, or laterally, whence result oval shapes with a horizontal or vertical axis. Occasionally the disparity is rendered remarkable by one pupil being strongly contracted and motionless, the other retaining its normal size and mobility. Where, however, one pupil is dilated and sluggish, the other being permanently contracted, the most remarkable deviation from pupillary symmetry obtains. A not unusual condition of the iridal margin is very peculiar. It suddenly juts out like a promontory into the expanse of the aqueous humor. There are sometimes several of these salient projections, sometimes only one. They might be easily mistaken for old iritic adhesions, that they are not so, is sufficiently proved by their sudden appearance, their sudden absence, and then as sudden return.

"In some instances, when the difference of the pupillary areas is not great, a regular margin being at the same time maintained in both eyes, it is not easy to discover which is the affected, or the more affected organ. If there were a

normal mean pupillary area, it would be easy enough, by comparing the two pupils with the standard, to determine which was the more implicated. This, however, is as far from being the case, that the contractility of the iris under a given luminosity can scarcely be said to be the same way in any two individuals, and it frequently varies in the same person according to his state of health, or even of spirits.

"How then is the affected iris to be distinguished? By its diminished contractile power. That iris is the more affected whose motions are the more sluggish. If a general paralytic with equal pupils be taken into a darkened room, it will be seen that one pupil expands more freely in the dusk than the other. As long as the patient remains in the twilight, the disturbed symmetry is apparent. The less expanded is, of course, the more implicated pupil. Pupils that are equal in the patient's ordinary sitting-room, become unsymmetrical in the padded room, which is always somewhat darker."

Mr. Austin writes gloomily of the results of treatment, and states that it mainly consists in the mitigation of symptoms. He recommends the use of Hyoscyamus in large doses (3j of the extract, gradually increased to 3ss or ʒij, twice or thrice a day), to calm intense excitement, the avoidance of depressing measures, and a generous and nutritious but unstimulating diet, in the fully developed cases. In nascent cases he recommends "the continued employment of small doses of mercury," three or five grains of blue pill every night for two or three months. This treatment has appeared to stay the onward progress of the disease, but as the disease occasionally, without treatment, manifests extraordinary remissions, he cannot speak with confidence of the course recommended.

2. The writer of the article in the 'Journal of Psychological Medicine,' gives a valuable summary of a protracted discussion upon general paralysis which not long ago took place in the Paris Medico-Psychological Society. Many of the most distinguished of the French Physicians practising in insanity took part in the discussion, and the opinions then expressed have been so dealt with in the article as to form a very satisfactory *résumé* of the state of our knowledge of the subject. The writer, moreover, expresses certain original views upon the pathology of the subject, which are too suggestive and of too great interest not to be quoted in full. He writes:

"We may now attempt to indicate what appears to ourselves to be the order of the phenomena and the relations of this interesting affection. Under the influence of certain causes, of such a nature as to produce prolonged over-excitement of the brain, amongst which stand out in bold relief the abuse of intoxicating drinks and sexual excesses, acting especially upon constitutions hereditarily or otherwise predisposed to degenerative affections—under the influence (we say) of such determining and predisposing causes, the nervous energy is deteriorated and exhausted, and this result, at first *dynamic* merely, is succeeded, in accordance with the general law of all organs long *functionally* affected, by a change in the tissue itself. This change is anatomically betrayed in the earlier stages of the disease by signs of considerable congestion, attended by increased weight of the cerebrum; and in the later stages, by atrophy of the convolutions, with comparative anaemia and loss of weight. On both these we have a few remarks to offer.

"We conceive that the first development of the congestion is chiefly *statical*, and a result of the want of that peculiar organic nervous energy which exerts so remarkable an influence over the capillary circulation in all parts of the body: aided by the continual distension of the vessels during the functional excitement of the organ. At times this becomes active, owing to the effort made by the arterial system to relieve itself of the oppressive weight in front. This effort seems to be occasionally successful, and to be followed by relief; at other times it only aggravates the mischief. This congestion appears, though not primitively inflammatory and here we venture to differ from Bayle, Parchappe, and other great authorities, to assume from time to time the form of a low chronic inflammatory action, which leaves its traces in thickening and opacity of the membranes, and certain other changes in the brain-substance itself, above described.

"With regard to the atrophy and softening of the convolutions, and the effusion of serum on the surface of the brain and within the ventricles, we are not inclined to attribute them to inflammatory action in any degree, but rather to a defect of nutrition of the organ, sometimes primitive, and sometimes secondary to the obstruction to the circulation, coincident with the congestion previously mentioned—a degeneration of tissue which is met with very frequently in other organs without any evidence of previous inflammation. The serum seems by general consent to be recognized as merely poured out to supply the place of the retreating organ. It must be remarked that this degeneration chiefly affects the gray matter in which the dynamic force of the organ is generally supposed to reside.

"Now it is necessary to inquire how far these views coincide with the symptoms during life, and what are the marks by which these pathological changes betray themselves in the course of their development.

"The data both of physiology and pathology lead us to the conclusion, that although we are not yet able to point out the precise seat of the various functions of the brain, we must recognize a *different seat* for intelligence, volition, sensation, and voluntary motion. (We designally separate between volition and voluntary motion, the functions being essentially distinct; it is not here the place to discuss this matter, but the fact as here stated is abundantly demonstrable, from the frequent phenomena of the contrast of the earnestness of the will with the imperfection of muscular performance.) Although, then, the special character of this peculiar degeneration is to spread and attack indiscriminately the whole of the organ, but especially the gray matter, yet judging from the phenomena of the disease, it appears not to expend its violence upon all parts equally at first; and according as the mal-nutrition or congestion affects first those layers or sections of the brain which preside over the different functions above mentioned, so the order of the phenomenon is either somato-physical, or psychosomatic—either the intellectual disturbance precedes and predominates over that of the muscular system, or the symptoms of paralysis precede those of insanity; and thus also we have two distinct orders of symptoms, one connected with the physical and the other with the moral nature—a somatic and psychical general paralysis.

"We believe that an attentive consideration of the phenomena of drunkenness will tend to throw much light upon the symptoms attendant upon the early or congestive state, and likewise to illustrate and explain the striking varieties observed in the outbreak of this affection. There is the most accurate resemblance between these two, only that the one is transitory, whilst the other is progressive and permanent. There is probably the same congestion—there is the same characteristic stammering or difficulty in articulating certain words—the same weakness, uncertainty or trembling of the arms and legs, and general muscular system—the same mental disturbance."

"Now, according to the varying constitution of the subject, the excitement of intoxicating liquors appears first in various forms. One man will betray his intoxication merely by increased sentimentousness, moroseness, pomposity, or irritability—in another the first symptom will be an expansive gait, and a manifestation of exaggerated universal philanthropy—another will be merely affected in his speech, the intelligence remaining intact—and again another will have his ideas so confused, and yet his consciousness so perfect, that he will not attempt conversation which he knows he cannot accomplish. In other cases it will be the locomotive system that is affected; the legs are unable to support the body, or to perform co-ordinate movements—or the hands are not competent to accomplish these delicate manipulations to which they are accustomed.

"Strictly analogous are the phenomena of the *début* of general paralysis—all probably due to one and the same cause, congestion affecting some portion or portions of the nervous tissues. In the majority of cases the congestive stage corresponds with the expansive form of delirium, just as in intoxication the first result is more frequently excitement of mind and body; but in other cases it produces depression and melancholia, and in others again it affects primarily the muscular system only. In most instances all the phenomena, both

of mind and body, occur at some period or other; but the order in which they occur is susceptible of every possible variation.

"By these considerations it appears that we may explain all the varieties of the disease on rational principles, and also reconcile all the conflicting views which have been advanced as to its nature.

"The degeneration of tissue may attack first that part of the nervous tissue which presides over voluntary motion: and the symptoms of paralysis will then be predominant, or even exclusively present. We shall then have the simple, uncomplicated general paralysis mentioned by Rostan, Pinel, and others.

"It may first attack that part which is the seat of the intellect, whichever that may be; and only affecting very lightly and in a secondary manner the locomotive part, we shall have insanity in which paralysis only appears late as a complication.

"When the disease attacks simultaneously the whole of the dynamic apparatus of the brain, the somatic and psychical phenomena appear at once, and we have the *general paralysis of the insane*—the form of disease which has been most studied, and to which attention was first directed, and through which the whole subject has been submitted to investigation."

The phenomena of the disease are next sketched in accordance with these views, and, in conclusion, the writer tells us that, although "nothing satisfactory can be said respecting treatment," yet the recoveries which have occasionally taken place, in which medicine has apparently been little concerned, teach us "not to be in too great haste to relinquish our endeavors after a cure, nor to view as absolutely hopeless even the most unpromising cases."

3. M. Calmeil first gave the name of *general paralysis of the insane* to this disease, in his admirable work upon it first published in 1826. This work ranks high among the classical literature of the profession, and when, after an interval of thirty-three years, M. Calmeil again takes up the subject, we turn with avidity and respect to the matured results of researches which have continued over so long a period.

M. Calmeil believes that the time has now come when we may legitimately affix to this disease a correct designation, and he terms it *chronic diffuse peri-encephalitis*—a name which directly expresses the conclusions arrived at by M. Calmeil respecting the pathology of the affection. He sums up his deductions concerning the uncomplicated disease in the following manner:

1. General incomplete paralysis, (or uncomplicated chronic diffuse peri-encephalitis), with mental alienation, ought not to be classed among the diseases of the understanding and movement.

2. It depends, like all affections of an inflammatory nature, upon a vital influence which has the power of attracting or retaining for a long time an excess of blood in certain groups of capillaries.

3. Its nature is proved by the results constantly obtained in exploring after death, either with the naked eye or with the microscope, both the membranes which protect the intra-cranial nervous centres and the nervous substance itself.

4. This malady is chiefly developed on the periphery of the cerebral hemispheres and of the cerebellum; but when it has endured a very long time, it tends to extend either to the deeper regions of the encephalon or to the spinal cord.

5. Males, and young, robust, plethoric, muscular persons, are most liable to the disease.

6. All those causes which have an irritant action upon the nervous system may give rise to the affection.

7. It occasionally threatens before it fully manifests itself, and we are warned of its invasion when we perceive an individual lose his memory, become passionate, foolishly extravagant, indulge ideas that can never be realized, and lose little by little the regularity, freedom, and habitual harmony of his movements.

8. It commences sometimes by a violent congestive attack of an apoplectic or convulsive character, or this attack precedes it several months or weeks.

9. We may consider that it is developed when we note in an individual under examination an undoubted restraint in the pronunciation, uncertainty of gait, an awkward action of the arms, enfeeblement of the mental faculties, ridiculous ambitious conceptions, obstinate melancholic ideas, paroxysms of exaltation of fury.

10. After several—twelve or fifteen—months' duration, there often occurs a species of powerlessness of all the muscular agents, and a more or less complete abolition of the understanding.

11. There is also often a manifest defect in the exercise of the organs of sensation, and in the transmission of the tactile and visceral impressions.

12. Sudden exacerbations sometimes occur, occasioned by inter-current congestive attacks, which attract and accumulate all at once an additional quantity of blood in the vessels of the meninges and of the nervous substance of the encephalon.

13. The extension of the disease has very rarely been arrested, but its progression may be interrupted by remissions, or accelerated by unforeseen recurrences.

14. It is essentially grave, but its gravity is modified somewhat by the extent to which it affects the surface of the brain, either in breadth, or length, or depth.

15. It decidedly compromises life when it has paralyzed the action of the pharynx, the œsophagus, and the sphincters; but many patients perish from the superintention of inflammatory affections of the pleuræ, the lungs, or the alimentary canal, before the occurrence of the last degree of muscular paralysis.

M. Calmeil, as the majority of physicians, speaks in a sombre manner on the subject of treatment, but until symptoms of disorganization of the brain occur, he thinks that we are not justified in withholding curative aid. He regards as one great cause of the inefficiency of medicine in these cases, the fact that patients are rarely seen at the commencement of the attack. The early symptoms escape the notice of, or are unapprehended by friends, and hence when the physician sees the case the mischief has too commonly proceeded too far to be checked. Remissions or intermissions may occur or be brought about in the progress of the disease, and he advises a well regulated anti-phlogistic treatment to be adopted. This might be anticipated from his pathological views regarding the disease.

He recommends a diet, nutritious, but neither too rich nor too succulent, diluents and saline drinks, bloodletting, general or local, at intervals—commonly a small bloodletting once or twice a month; occasionally the application of leeches around the arms, behind the ears, on the sides of the neck, or within the nasal fossæ, will suffice to diminish the constraint in pronunciation; prolonged warm baths—from three to four or five hours, if there be maniacal petulance or fury—with the application of cold to the head during the bath; at times the dose he succeeds with patients of the class named: pediluvia and sinapisms—hydrochloric acid been added, if it be thought fit, to the pediluvia; finally, the use of resinous purgatives.

This is the species of treatment which M. Calmeil finds most generally useful, but its activity must be diminished when the loss of memory, the deterioration of the intellectual faculties, and the difficulty of speech, become steadily greater in spite of the remedial means employed. When this is the case it is usual to make use of setons, blisters, or the cauter, to the neck.

On the employment of Woorali in the treatment of Tetanus in man. By (1) M. L. VELLA, (2) MANEC, (3) CHISSAIGNAC, and (4) SPENCER WRIEL. (1. *Courtes Rendu*, 29th August and 19th September, 1859. 2. *Gaz. Helv. de Med. et Chir.*, 24th September and 14th October, 1859. 3. *Medical Times and Gaz.*, 3d December, 1859.)

On the 29th of August, 1859, Professor Claude Bernard presented to the Academy of Sciences, in Paris, a communication from M. L. Vella, of Turin, on the employment of woorali in the treatment of tetanus. The author had

been led to adopt this mode of treatment by reflecting on the antagonism existing between strychnism and woorari poisoning, and the trial was made in the French Military Hospital at Turin, with the consent of the senior physician, M. Salleron. The patients operated upon were three in number. The two first of these were in a hopeless state from the commencement, but even in them, M. Vella thinks, the effect of the woorari was to relieve the spasms, and in that way to soothe the last moments of the sufferers. The third patient was more fortunate, and it is of his case that the particulars are given.

The patient was a French serjeant, who had been wounded on June 4th, at the battle of Magenta, by a ball which had caused an incomplete fracture of the metatarsal bone of the right foot, with laceration of the tendons and soft parts. He entered the hospital on June 10th, under the most favorable circumstances. Three days afterwards the ball was extracted, and the operation relieved him of much of the pain which the presence of the foreign body had caused him. On the third day after the extraction of the ball, stiffness of the neck made its appearance, attended with difficulty of moving the jaw and the head. There was also slight convulsions, but these were of short duration. The following day the jaws became firmly locked, rendering it at times impossible for him to open the mouth. On the 18th the occurrence of trismus, opisthotonos, and other characteristic symptoms, left no doubt as to the serious character of the disease, and it was declared by all the surgeons attached to the hospital to be general tetanus. The condition of the man was so serious and alarming that M. Vella deemed it necessary to bleed him from the arm, for the purpose of relieving the asphyxia with which he was threatened. He then, after having freely incised the wound, administered a powerful dose of opium, but these measures produced no good result. On the afternoon of the same day he decided on the application of a woorari to the wounded foot; the dose being in the proportion of two grains of woorari to an ounce and a third of water, applied in the form of compress; the strength of the solution was gradually increased until it reached the proportion of twenty grains of the woorari to nearly three ounces of water. Three quarters of an hour after the application of the weaker solution, and half an hour after the more powerful was employed, a visible diminution of the tetanic rigidity was the result, followed by such complete muscular relaxation, that the patient was almost immediately able to drink, to take soup, to urinate, and to sit up in bed. At the commencement of the treatment it was remarked, that as soon as the peculiar physiological effects of the woorari began to pass off, the tetanic spasms reappeared with as much violence as ever, and that the wounded leg was always the first part of the body affected by them. After three days of this treatment, a large blister was applied to the thigh, in order to secure a more extensive absorbent surface, and the solution was applied to it, as well as to the wound of the foot. For four days the dressings of the entire absorbing surface were renewed every three hours, then every five hours up to the twelfth day, when they were reduced to twice in the twenty-four hours. It was remarked by M. Vella, that the wound of the foot and the raw surface produced by the blister were not irritated by the application of the woorari, as they healed very rapidly. M. Vella resumes his case in the following language: "The woorari, which for the first eight days succeeded in rendering greater the interval between the paroxysms, and in diminishing their intensity, ended by making them disappear entirely; and on the 10th of July the patient was able to leave his bed for the first time, without experiencing any convulsive shock." On the 15th he went out for an hour, and on the 25th of the same month he left the hospital perfectly cured.

M. Mance's case occurred in the Hôpital la Charité, in Paris. The patient, a cabinier, æt. 39, whose right shoulder-blade and forearm had been fractured by a blow from the pole of an omnibus, was admitted into the hospital on the 7th of September, 1859. General tetanus came on during the evening of the day after admission. On the morning of the third day a small incision was made with a lancet, about the middle of the left arm, and as soon as the blood had ceased to flow, two drops of a watery solution of woorari, each drop containing a demi-milligramme, were dropped into the wound. This was at 2.45

p. m. At 2.55 **p. m.** two additional drops were introduced, but without any result. At 3.15 a puncture was made in the upper portion of the fore part of the chest, and a drop of a stronger solution introduced—a solution of which each drop contained a demi-centigramme. At 3.25 a drop of the same solution was introduced into the wound in the arm, and at 3.32 another drop into the wound in the chest. Every five minutes from the commencement of the treatment the pulse was examined, and found to range between 32 and 40 in the minute. At 3.40 a granule of pure woorali, weighing two and a half centigrammes, was introduced into the wound in the arm, but as yet there was no amelioration in the symptoms. On the contrary, the spasms were becoming more frequent and more violent. At 4.20 an unusually violent paroxysm seized the patient. At 4.55 a granule of the solid poison, weighing two and a half centigrammes was introduced into the wound in the chest, and at 5.12 five drops of a solution, containing 20 per cent. of woorali to one gramme of water, was injected by means of a syringe into the subcutaneous cellular tissue below the clavicle. At 5.53 five drops of the same solution were again injected in the same manner. At 8 **p. m.** twelve drops of this solution were injected, and then the treatment was abandoned. From the beginning there had not been the slightest sign of amendment, but the spasms went on continually, gaining in severity and frequency. Death happened at 10.15 **p. m.** In the whole course of treatment twenty-seven centigrammes of woorali were used.

M. Chassaigne's patient was a young man, *æt.* 24, who had received a severe gun-shot wound in the hand. This was on the 1st of September, 1859. Symptoms of trismus set in a fortnight later, for which musk and opium were given internally, and chloroform frictions employed externally. On the 19th the tetanic symptoms had seized upon the trunk, and when seen the patient was in a state of emprosthotonos, his face pale, his limbs cold, and his breathing almost asphyxial. The treatment now was to incise the wound every two hours with a solution of twenty centigrammes of woorali in 200 grammes of water, and to give at the same time internally, every hour, two tablespoonfuls of a mixture containing ten centigrammes of woorali to 120 grammes of julep. The first dose was given at 7 **p. m.**; at 8 **p. m.** the patient felt better, breathing more easily, and the clenching of the teeth being somewhat less firm. On the day following (September 20th), the treatment having been sedulously persevered in, the state was very much as it was late on the evening of the 19th. On the 21st the state was manifestly more satisfactory, the rigidity being less marked, and the spasms less frequent. The strength of the solution for external application was doubled; that of the draught was not interfered with. On the 24th and 25th, fearing that the rapid cicatrization of the wound might prevent a sufficient amount of absorption, the quantity of the woorali in the draught was doubled. The treatment was still in progress when M. Chassaigne brought the case before the Parisian Society of Surgery; but with the exception of a little trismus, the patient at that time would seem to have been convalescent. We gather that the woorali was still given and applied.

The cases in which this plan of treatment was tried by Mr. Spencer Wells, are the first which have occurred in this country. Two of them occurred in the Samaritan Hospital, the third in private practice. The particulars given are very scanty. The first was a case of chronic, but severe trismus, going on to opisthotonos, appearing a fortnight after ovariotomy, in a patient 41 years of age. The exciting cause appeared to have been a draught of cold air. Woorali was used hypodermically and epidermically, six grains of the extract having been used in six days. The patient recovered. In a second case, acute tetanus appeared seven days after ovariotomy in a lady, 28 years of age, and proved fatal in three days. The treatment was commenced by assafoetida injections, and woorali was afterwards used, the softened extract having been inoculated in both arms. In the third case tetanus appeared four days after a simple perineal operation for the relief of pyelitis uteri in a patient, 51 years of age. It progressed slowly; was treated first by opium and ether, afterwards by woorali, and latterly by chloroform, the influence of which was kept up at intervals for forty-eight hours. The patient died on the evening of the ninth day.

— It is no easy matter to draw any safe deductions from these facts. It is

certainly a natural inference, considering the peculiar paralyzing powers of woorali, to suppose that it might prove a remedy in tetanus; and so long ago as 1811 such an inference was made by Sir Benjamin Brodie, and shortly afterwards put to the test upon an ass suffering from tetanus, by Professor Sewell, at the Royal Veterinary College. About the same time, also, a series of experiments were instituted upon animals poisoned by strychnia by Mr. Morgan, of Guy's Hospital, and again, three years ago, by Dr. Harley, of University College. Dr. Harley, moreover, in 1856, aided by Professor Varroell, of the Royal Veterinary College, employed woorali in the treatment of a horse suffering from idiopathic tetanus. The idea of treating tetanus by woorali, therefore, had been fairly broached in this country before Professor Claude Bernard gave occasion to it by his experiments with *curarina*—the active alkaloid of woorali—so that the credit of conceiving it must belong to Englishmen, if credit there be in it. Much remains to be done, however, before woorali can be accepted as a promising remedy in tetanus. A preparation of uniform strength must be obtained, and this is no easy thing, for even *curarina* itself would seem to be of very variable power. And even if it be found that the reason which leads to the employment of woorali in tetanus is a sound one, it is still a question whether *curarium*, the physiological action of which is almost identical with woorali, will not be a more suitable remedy—more suitable especially as being of known strength, and as being introduceable into the system by the stomach.

A case of Thoracic Aneurism in which the symptoms had been present ten years, and in which a nearly fatal hemorrhage occurred four years and eight months previous to the fatal termination. By W. F. CHAIRNER, M. D., Physician to the Royal Infirmary, Edinburgh, &c. ('Medico-Chir. Trans.,' vol. xlii., 1859.)

The chief interest of the case consists in two circumstances—in the very long period which exists between the occurrence of rupture of the sac and the ultimate fatal event, and in the occurrence of hemorrhage, in a modified form, at intervals, during the whole of that very long period. The case is also interesting in relation to the diagnosis of thoracic aneurism, the probability being, as Dr. Chairner maintains, that continuous, though moderate hæmoptysis, without disease of the heart or lungs, and accompanied by stridulous breathing, must be regarded as diagnostic of such disease.

The subject of this history was a merchant of robust frame, of more than average intelligence, and who at the time of his death was about forty years of age. He was under the author's care during the latter four years of his life, and, from his own statements, a very distinct history was obtained, extending back to ten years before the fatal result. It was then that he first complained of pains in the left side and shoulder, which were regarded as rheumatic, and were always relieved by violent exercise. They were, however, unaffected by treatment; and after continuing in very much the same state for more than three years, he was for the first time informed that there was some affection of the great vessels. Pulsation became evident in the following year, and the sputa, though occasionally of a yellow color, were never distinctly blood-tinged till the autumn of 1853, when hæmoptysis to an alarming extent occurred on two distinct occasions in the same day. After this, he submitted to a variety of treatment, and at length came under the care of the author in the following April. He then exhibited every sign of a large aneurism of the aorta, presenting itself in the left front just under the clavicle, and passing upwards and backwards so as partially to involve the left subclavian. The left pulse was at this time weaker than the right, and in the end became nearly lost. He was directed to take gentle exercise, and partially to resume business, which he had abandoned: to take light nourishing diet, and abstain from medicine; now and then, when the pain was severe, to put on two leeches over the tumor; and to think as little as possible of his complaint, except by way of caution against violent movements. Under this plan his general health improved, but the disease slowly made progress; and he continued to bring up a more or less tinged expectoration—sometimes rusty, sometimes purple—with only the intermission

of a few weeks at most, during the remainder of his life. During the last year he had severe pain, almost like angina pectoris; he lost flesh; had occasional difficulty in swallowing; and brought up blood more copiously, though never in large quantity nor unmixed. At length a small gush of blood, which probably did not exceed nine or ten ounces, occurred, which terminated his life by suffocation in a few minutes, on the 19th of April, 1858.

On post-mortem examination, the aneurism was found involving the descending aorta from the origin of the subclavian to the extent of several inches. It lay behind and above the left lung, to which it was firmly adherent. The left bronchus was stretched over the sac, and its posterior wall was absorbed throughout, the coagulated fibrin being freely exposed to view from the interior of the bronchus. Another small opening, with smooth edges, evidently of long standing, existed at the bifurcation of the trachea, and also rested upon firm, solid, laminated clot.

In discussing the question of hæmorrhage from aneurism generally, it is remarked that the case of the late Mr. Liston, recorded in the "*Lancet*" for December, 1847, was, perhaps, the first to call the attention of the profession to the possibility of hæmorrhage occurring from this source so long as five months before death, the minor discharges of blood which had occurred being before this time referred to other causes than perforation of the sac. Dr. Gairdner has only been able to trace nine or ten instances in which hæmorrhage was recorded to have occurred more than one month before death, and only one exceeding the period in Mr. Liston's case—namely, a preparation in Guy's Hospital,* pointed out by Dr. Sibson, in which the patient had severe hæmoptysis seven years before death. It happened to the author, some years ago, to be able to place on record another instance, in which an aneurism of the superior mesenteric artery had given rise to hæmorrhage from the bowels twenty-two months before the patient's death. ("Monthly Journal of Medical Science, vol. x. p. 83.") Dr. Gairdner refers also to two cases in which aneurisms, opening externally, had ruptured, and given rise to very severe hæmorrhage at long intervals before death: one communicated to Mr. Syne ("Monthly Journal of Medical Science," vol. x., p. 89), where the man lived four months, and died of typhus fever; another recorded by Dr. Stokes ("Diseases of the Heart and Aorta," p. 582), in which frequent hæmorrhages took place during a year, after which the tumor became dense and hard, the cough and dyspnoea abated, and three weeks after the last attack, the patient left the hospital, saying that "he felt quite well." Dr. Gairdner attributes the minor hæmorrhages, in almost all cases, to rupture of the sac; and this cause of hæmorrhage is very apt to be overlooked when it amounts to no more than an inconsiderable leakage, which may last for weeks or even months. He describes four varieties of hæmoptysis as likely to occur, and endeavors to associate them with differences in the site and relations of the tumor, and the changes occurring in the lung structure. These he characterizes as being being very rarely of an inflammatory character, but more commonly either of the nature of collapse from pressure on a bronchus, or of chronic infiltration of blood directly or indirectly from the aneurism. He calls in question the explanation usually given of these minor hæmorrhages, that they are produced by venous congestion—1st, because, when pressure on a vein has occurred, hæmorrhage has almost always been associated with direct pressure of the aneurism on the trachea or bronchi; 2dly, because, in his experience, some of the most characteristic cases of slight and continuous hæmorrhage had been from aneurism in which no pressure on the pulmonary veins was possible. He does not venture to assert that blood in the discharges of a patient affected with aneurism *always* indicated the communication of the sac with a mucous membrane, but he believes it generally does so, the more especially when hæmoptysis occurred, if the aneurism pressed on the trachea, and if it were unaccompanied by indications of pulmonary change.

In conclusion, the author points out the great importance of this conclusion

* The patient from whom this preparation was taken was a woman, 64 years of age, a patient of Dr. Bright's. She had been subject to palpitation, and pain between the shoulders. There was no stenosis in the report of the case as to the hæmorrhage there had been six or seven years previously. No tubercles were detected in the lungs, nor disease in the heart.

with reference to diagnosis in obscure cases. He says that in aneurisms characterized chiefly or exclusively by laryngeal symptoms, it is often extremely difficult to arrive at a satisfactory conclusion as to the cause of the very distressing dyspnoea. In this class of cases, he considers the presence of even small quantities of blood in the sputum a most valuable means of diagnosis; for if there be laryngeal dyspnoea and stridulous respiration, if the epiglottis be not thickened, if the mucous membrane of the larynx, so far as it is within reach of the finger, be sound, and if with these signs, positive and negative, there be a persistent tendency to even the slightest amount of blood in the sputum, while auscultation and percussion give negative results, both as regards the lungs and heart, aneurism may, in the opinion of the author, be predicated with as much certainty as is possible without the physical signs of tumor. Further, such an aneurism may be assumed to be small, arising from the back part of the arch, or from the commencement of the innominate artery, and so placed as to entangle either the left or the right recurrent nerve.

On the true character of "Fetid" Alvine Excretions. By Dr. INMAN, of Liverpool. ('British Med. Journal,' 11th June, 1859.)

The following important remarks are from a paper on the influence of vitality upon the excretions. The practical proposition which Dr. Inman seeks to establish is this—that if a physician finds that the excretions of his patient decompose more rapidly than they would do during health (under the same external circumstances of light, air, and heat), he may feel certain that the vital powers are seriously impaired.

"My attention," says Dr. Inman, "was first called to the subject in the following manner. When M. Ledoyen came to Liverpool, about twelve years ago, to demonstrate the desodorizing power of his 'disinfectant' fluid, among other experiments the following was made. The alvine dejections of a certain number of patients, ill with fever and various other diseases, were all placed side by side, to the number of thirty or more, in a small room attached to the pauper hospital. They remained all night in the chamber, and the next day M. Ledoyen commenced operations. After demonstrating the general advantages of his compound, he proceeded to sprinkle a few drops of his diluted mixture into each vessel. The amount used was the same in each case; but the appearance produced varied immensely; and, according as the chemical change was excessive or otherwise, he judged of the condition of the individuals who had passed the 'motion.' 'This patient,' he would say, 'is not very bad; that one is seriously ill; this one is dying; this one is nearly dead,' &c. As his observations were correct, he was asked how he judged of the danger the patient was in? His reply was, 'that he had found, in the course of his experiments, that faeces decomposed rapidly or otherwise, according to the debility of the individual passing them.'

"For a long period, the principle here enunciated seemed to belong to the class of interesting but useless facts. More recent observations have, however, shown that it may be turned to good practical account.

If any one will diligently consult the napkins used by infants, he will find that, during the time the motions are of a good healthy yellow color, they have a peculiar odor, which they retain for twelve hours at least; but if, from any cause—e. g., debility in the nurse, or inappropriateness of the food—the child loses its healthy condition, the motions not only change in color and consistence, but in smell, and decompose in a very short time after being passed. Where there is diarrhoea and excessive depression of the vital powers, the motions are often found to be decomposed in a few minutes. We may notice, too, that a similar result is met with at the same time in the other secretions of the child; and that the urine decomposes quickly, and the breath is foul or sickly.

"But it is not in children alone that this change may be detected: it is equally evident in adults. If, for example, the doctor is called to attend a case of diarrhoea, where there is always more or less debility present, he may consider it necessary to inspect all the alvine discharges that take place. His

visits are at intervals of twelve hours only; and he has on each occasion placed before him perhaps as many as six motions in different uterine vessels. He is probably struck with the different odor exhaled from the various specimens, and notices a difference in the color; but a few words from the nurse soon explain the mystery. The dark brown stinking ones are those passed the longest period ago; the healthy looking and smelling ones are those passed only a short time before the doctor's visit.

"Simple though this fact seems to be, it is one which is not universally acknowledged and acted on; I have known 'motions' which have simply become decomposed taken for 'foul secretions,' and the patient dosed with mercurials, under the impression that they would improve the condition of the bowels. The result has been what might have been anticipated: the patient has got weaker, and the bowels no better. The following case came under my notice some time ago. It is valuable as illustrating the danger resulting from inattention to these points.

"An elderly gentleman was under treatment for indigestion. He was improving upon a tonic plan of treatment, when he was induced by his friends to have 'a second opinion.' When the physician called, he was shown a motion which had been passed twelve hours before. It had undergone decomposition, and was pronounced to be extremely 'vitiated'; and, with the intention of improving the secretion, a mercurial alterative was prescribed. This acted freely; and when the visit was made the next day, the motions were all inspected, and as that passed the last seemed to be the most healthy, the natural conclusion was that the medicine had done good. It was therefore persevered with: on the next occasion, and for sometime subsequently, only the last motion passed was inspected, and, as it had not had time to be decomposed, it was thought to be healthy, and the patient was supposed to be 'better,' as his secretions were no longer 'vitiated.' But, notwithstanding this opinion, it was clear to the first attendant that the man was getting more feeble and debilitated day by day. If the medicine did improve the secretions, it certainly impaired the strength. It was then doubted whether the first inference was correct: and, to decide this, the nurse was directed to save all the 'motions,' and arrange them in the order in which they were passed. When they were inspected, the same order of things was noted as at the first examination: but the older ones appeared more vitiated than ever, and the most recent ones had begun to change in color. It was interesting to know how the same fact struck the two doctors. One remarked, 'that with such excretions, there was greater necessity for an alterative than ever;' the other said, 'that seeing such had been the effect of the alteratives which the patient had already taken, the sooner they were suspended the better.' This led to a warm debate, which was ultimately decided by an appeal to the nurse. Thus: 'Nurse, which is the last motion passed?' 'This' (the healthy looking one). 'How long has it been passed?' 'An hour.' 'What was the appearance of the other motions when they were passed?' 'They looked precisely the same as the one first referred to.' 'Then they have all changed in appearance since they were placed here?' 'Yes.' 'Do the motions change in appearance now more rapidly than they used to do?' 'Yes.' This confirmed the idea that the 'vitiated character of the excretions' was so to speak, a post-mortem appearance, and simply indicated a smaller amount of vital force (as opposed to chemical) than is usually possessed by vital products where separated from the body. The termination of the case showed the justice of this view, for the patient's strength continued to diminish, and he died shortly afterwards of pure debility and exhaustion. It is useless to speculate upon what might have been the result had the phenomena been read correctly from the first.

"As decomposition takes place in the alvine secretions very rapidly in fevers and all diseases marked by great debility, the practitioner must ever have his attention alive to the fact, that what he calls 'vitiation' may be more apparent than real, and a sign which calls for stimulants and strengthening remedies rather than mercurial alterative medicines, whose invariable effect is to make a weak patient weaker."

II.

REPORT ON THE PROGRESS OF SURGERY.

On Surgical Fever. By J. G. SIMPSON, M. D., Professor of Medicine and Military in the University of Edinburgh. (*Medical Times and Gazette*, April 23d and 30th, and May 14th and 21st, 1859.)

Every patient who is placed upon an operating table runs no small risk of death, and in severe operations he is in as great, if not greater, danger than a soldier entering one of the bloodiest and most fatal battle fields. And yet a very few, probably not more than one in eight, are carried off by the immediate surgical consequences and complications of the operation itself—tetanus, sloughing, hæmorrhage, suppuration, and so on. On the contrary, they perish with symptoms of acute fever during life, and showing on examination after death, in various internal organs, the products of acute and recent inflammation. They die of surgical fever, a disease consisting of a combination of co-existing acute fever and acute internal inflammation, just as puerperal patients die of puerperal fever, a similar compound disease, consisting, exactly like surgical fever, of co-existing acute fever and acute internal inflammation. This identity of nature in surgical and puerperal fever, Dr. Simpson thinks, is fully borne out by the post-mortem disclosures in the two affections, and this, we think, is proved by his statistics. Dr. Simpson's first reference is to Dr. Chever's able inquiry into the causes of death after injuries and surgical operations, in the 'Guy's Hospital Reports' for 1843.

"Of Dr. Chever's 153 surgical patients," he says, "134 died of surgical fever, and presented after death recent acute inflammatory effusions and lesions in various internal organs. The relative frequency with which different internal organs and parts of the body were found attacked with acute inflammation in these 134 cases, is shown in a condensed form in the following table :

*"Inflammatory Lesions in 134 Cases of Surgical Fever.
(From CHEVERS.)"*

Peritonitis was observed in	52 cases.
Enteritis (excluding cases of Hernia)	9 "
Pneumonia and its results	47 "
Pleuritis	35 "
Bronchitis, Laryngitis, and Diphtheritis	4 "
Pericarditis	14 "
Arteritis and Aortitis	4 "
Phlebitis	3 "
Meningitis	27 "
Cerebritis	9 "
Cystitis	8 "
Pus in Muscles or joints	3 "
Inflammation of Tunica Vaginalis	1 "

"When in Vienna last summer, my nephew, Dr. Alexander Simpson, obtained access to the pathological records of the large General Hospital there, where the autopsies are made under the supervision of Professor Rokitsansky, and drew up for me from those records some statistical tables, to show the relative frequency with which the various organs and parts of the body become the seat of secondary inflammatory changes in the cases of patients dying of surgical and puerperal fever respectively. Allow me to call your attention now to this

" *Table showing the relative frequency with which different Organs and Parts of the Body were found to have undergone recent Inflammatory Changes in 100 Cases of Surgical Fever.*

The lungs and pleura in	69 cases.
Veins	53 "
Seat of the operation or injury	40 "
Cellular tissue and muscles	28 "
Peritoneum	16 "
Brain and its membranes	16 "
Bones and joints	15 "
Spleen	10 "
Kidneys	9 "
Stomach and Bowels	7 "
Bladder	6 "
Liver	5 "
Pericardium	4 "
Lymphatics	3 "
Arteries	2 "
Vagina	2 "
Interior of uterus	1 "
Heart substance	1 "
Parotid gland	1 "
Ear	1 "

" The patients in whom inflammatory lesions of these various internal organs and parts were discovered after death, had been subjected to operations and injuries of all parts of the body, and of all degrees of severity, from amputation of the thigh, down to the operation for phymosis, and the simplest, most superficial wounds.

" Consider now that table of the organs and tissues most commonly affected by inflammation in cases of surgical fever, with this

" *Table showing the relative frequency with which different Organs and Parts of the Body were found to have undergone recent Inflammatory Changes in 500 Cases of Puerperal Fever.*

Seat of the Inflammatory Lesion.	No. of Cases.	Percentage of Cases.
Interior of uterus	372	74.4
Veins of uterus	349	69.8
Peritoneum	321	64.2
Lungs and pleura	202	40.4
Lymphatics	129	25.8
Ovaries	78	15.6
Cellular tissues and muscles	46	9.2
Veins other than uterine	40	8.0
Brain and its membranes	23	4.6
Spleen	21	4.2
Vagina and pudenda	19	3.8
Bones and joints	18	3.6
Kidneys	17	3.4
Stomach and Bowels	13	2.6
Pericardium	12	2.4
Mamma	7	1.4
Fallopian tubes	5	1.0
Bladder	4	0.8
Parotid gland	3	0.6
Heart substance	3	0.6
Endocardium	2	0.4
Iris	1	0.2
Tonsil	1	0.2
Larynx and trachea	1	0.2

"A comparison of these two tables will serve to show you how far we are justified in speaking of surgical and puerperal fever as analogous in their nature; and the difference in the frequency with which different internal organs and parts are apt to become the seat of the acute inflammatory effusions and changes in the two sets of cases, is owing mainly, if not, indeed, altogether, to the difference in the seat of the primary lesion; for the identity between the two diseases becomes more striking, if we compare the latter of these two tables with such a one as this:

"Table showing the relative frequency with which different Organs were found to have undergone recent Inflammatory Changes in 19 Cases of Surgical Fever resulting from Operations or Injuries of the Pelvic Organs (including three cases of Herniotomy.)"

Seat of the Inflammatory Lesion.	No. of Cases.	Percentage of Cases.
Peritoneum	12	63.1
Lungs and pleura	12	63.1
Seat of wound	5	26.3
Cellular tissue around kidneys	5	26.3
Cellular tissue elsewhere	4	21.
Intestinal Canal	3	15.8
Bladder	3	15.8
Liver	3	15.8
Veins	2	10.5
Spleen	2	10.5
Vagina	1	5.3
Uterus	1	5.3
Bronchi	1	5.3
Parotid gland	1	5.3

"The proportion in which different internal organs are the seats of acute inflammatory action and deposits, is very much the same in this table as in patients dying of puerperal fever, apparently, because I beg to repeat, the primary lesion or wound in the surgical cases included in this table was, as in the puerperal patient, in the pelvic viscera or neighboring parts."

Dr. Simpson enters at considerable length into the etiology and semeiology and treatment of surgical fever, and his remarks are of great practical value. The great point of the paper, however, is the analogy between this fever and puerperal fever, and it is to this that we would especially and emphatically call the attention of surgeons. Every one knows the danger of puerperal fever, and that great precaution must be taken to prevent it. Something is also known of means of prevention. Let, then, the surgeon suppose that his patients are threatened by a similar danger to that which threatens the puerperal woman, and let him adopt the same precaution, and is it not to be hoped that his practice may be proportionately successful? Half the danger may be overcome by apprehending its nature aright, and we are disposed to think that the service which Dr. Simpson now does to surgeons in pointing out the true analogies of surgical fever, is only second to that which he did in the introduction of chloroform some years ago.

On the importance of saving the Periosteum in resection and in some other operations on the bones. By Dr. LÉONARD OLLIER ('Journal de Physiologie,' Jan. and Apr., 1859).

In this memoir are some experimental researches upon the artificial production of bone by transplanting the periosteum, and upon the regeneration of bones after their resection and complete removal. The facts are of great interest, and their bearing upon practical surgery is obviously of great importance. Dr. Ollier shows, most conclusively, that bone continues to be produced on the under surface of transplanted periosteum, and that by thus transplanting periosteum we may produce bone at will—bone which will form a process of the

original bone, or be independent, according as to the periosteum is left in connection with the original bone, or not. By taking strips of periosteum and arranging them in circles, figures of eight, &c., the form of the new bone was modified accordingly. The bone thus obtained is not merely an irregular calcareous mass. It is true bone, having all the microscopic characters, and growing in the same way, and when fully grown having a medullary cavity and medulla. The new bone is formed in a subperiosteal blastema, and its formation is retarded or prevented by removing this. The blastema itself is semi-fluid, having free nuclei, or cells of nuclei, together with a large quantity of granular and some fibrillar matter. The new bone appears to be formed without the intervention of cartilage, and certainly the rapidity of the reproduction is directly proportionate to the amount of periosteum concerned.

Dr. Ollier has also established the fact, that after the removal of the articular extremities of two contiguous bones, the two bony extremities are completely reproduced if the capsules and ligaments are left in continuity with the periosteum.

—The surgical bearings of these facts upon resections and autoplasmic operations are obvious.

In cases of resection it is not enough to remove the bone, but care must be taken to provide for its reproduction by preserving the periosteum. It is a primary duty to make this provision. In cases of autoplasty, also, it is possible to conceive of many cases in which it will be of vital service to make use of the fact that new bone may be produced by drafting a slip of periosteum of the requisite size and shape. Dr. Ollier makes one other suggestion which seems to be of much value in a surgical point of view. It is, in case of amputation, to save as much periosteum as will serve to close the end of the bone, and to cover up the exposed medullary cavity. He thinks that by this means some dangers would be avoided and some advantages secured, for the periosteum will contract an immediate adhesion to the bone, and heal by bone the wound made by the saw.

A new treatment of Urethral Obstruction. By (1) Mr. NORMAN, Consulting Surgeon to the Bath United Hospital; and (2) Mr. T. PAGET, Surgeon to the Leicester Infirmary. (*Bristol Med. Journal*, June 4 and July 2, 1899.)

Mr. Norman is an advocate for perineal section where the retention is caused by impassable stricture, and for puncture through the rectum in cases of less permanent obstruction. He relates a case, however, the result of which may suggest the question whether, in cases of diseased prostate, where the difficulty of passing a catheter is such that the patient is unable to accomplish it himself, and where he is unable to procure the constant attendance of a surgeon,—it may not be advisable to allow the bladder to be distended so as to project above the pubes, or to bring about the same state by injecting the bladder; and then to puncture above the pubes, with the intent of preserving a permanent opening.

Mr. T. Paget says: "This operation I have seen and practised for fully forty-five years; how frequently I cannot say, but I have done it thrice in the same individual, twice of which were within forty-eight hours, in consequence of his getting the canula out during sleep a few hours after its first introduction. I believe I should be safe to say that in our infirmary, and in private, I must have witnessed and done more than twenty-five of these operations. I have not once seen any bad result from them, neither urinous infiltration, suppuration, nor even inflammation; and am therefore convinced that surgeons, on further experience of this simple, safe, almost instantaneous proceeding, will be 'pretty well agreed' that it is not 'the most dangerous mode of reaching the bladder.' There is comparatively no wound to inflame; there is no violence done to the tendinous sheet of the linea alba; no disturbance of the muscular covering of the abdomen; no exposure of the cellular tissue in front of the bladder. These, of course, are the causes of inflammation and suppuration. Infiltration is next to impossible while the canula is tightly embraced by the skin, tendon, and contracted bladder.

"If it is required permanently to adopt the short flexible tube for micturition,

of course it will be right to be in no hurry about the exchange, but to retain the silver one for some days, to allow its track to become consolidated by the adhesive process. I have, in the two cases now reported, found twelve and fifteen days quite enough; probably they are more than enough."

1. *Mr. Norman's Case.*—An elderly man, who had for a considerable time experienced difficulty in emptying his bladder, from disease of the prostate, was twice admitted into the United Hospital for retention of urine; and, as on neither occasion could an instrument be passed, the bladder was punctured through the rectum. The third time, he was admitted under my care. I could not pass a catheter; and as the bladder, then fully distended, occupied a space considerably above the pubes, I punctured it above the symphysis; and, after the escape of the urine, I passed a gum elastic catheter through the canula, and, withdrawing the latter, I secured the catheter in the bladder, and all the urine passed through it. After some time the wound healed around the catheter, and the adjacent parts became consolidated; so that it was certain that the bladder had become permanently fixed above the pubes. I then withdrew the catheter, and, keeping a small piece of bougie as a plug in the opening, the man drew off his water with a female catheter as often as required. It soon became evident that there was no occasion to keep in the plug, as the opening was permanent, and no urine escaped excepting when the catheter was passed; nor did a drop of urine ever pass through the urethra. I had an opportunity of knowing that he lived two or three years after, without suffering any inconvenience.

Mr. T. Paget's Cases.

Case 1.—This is that of Mr. N—, who has raised himself from the ranks by application, quick insight, and entire reliability of character, to a position of considerable command in the glove trade of this place (Leicester). From early life he has suffered much from stricture, which resisted the various efforts of several surgeons for its removal, and latterly, for some years would not admit any instrument through it into the bladder. His attacks of stoppage of urine had fortunately given way to the introduction of bougies *into*, not *through*, the stricture. In May, 1842, when near the completion of his sixtieth year, this mode of relief failed him, and on the 21st, after suffering for several days from entire retention, he submitted to have a well-curved trocar introduced above the pubes. After about ten days it was thought desirable to remove the canula, in the hope of compelling the bladder to resume its function, which it had so far shown no disposition to do. The patient, however, firmly insisted that he should be allowed to live as long as he could be enabled to by any modification of the instrument, and then die, rather than part with it to return to his old state. This being plainly a determination with him, which a few days talking would not shake, I got him some gum-elastic tubes, about three inches long, and a silver shell like those of the bladder trocars, with a tube about half an inch long, the tube furnished inside with as deep a screw thread as the thickness of the metal would admit. Into this the elastic tube being screwed when warm was securely fixed. A thin elastic webbing passes round the pelvis from eye to eye of the shield, and fixes the instrument, which is perfectly easy. It is completed by a wooden plug, made water-tight by a slight covering of muslin, and a spiral coil of silk thread.

This has been his only resource for now seventeen years. He is a hale, lively man, full figured, fresh in complexion, and rejoices in his opportunities and capability of walking four or five miles, which he does perfectly free from pain. The tube he changes himself nearly every day. If it remains any length of time, particularly if his digestion be amiss, lithic incrustation irritates the bladder. I have occasionally during the seventeen years, found his urine mucous, and even muco-purulent from this cause, and from uneasiness produced by the extremity of the tube where it presses posteriorly upon the bladder. When the latter cause is recognized, a variation in the length of the tube changes the point of contact and gives relief. Rest, however, in bed, spare diet, and an aperient, have more commonly removed the muco-purulence in a

few days. His only semblance of urine passing by the urethra is a very rare perception of moisture from the penis.

CASE 2.—This is that of Mr. F—, æt. 70, who has also suffered for the larger portion of his life from stricture. Of late his attacks of retention have yielded small bougies or catheters, introduced only *into* the stricture: and it is reported to me that only once for about twenty years has an instrument of any kind reached his bladder, when, Mr. Cooper tells me, he succeeded in passing one of the thinnest elastic catheters. He has frequently tried in vain since this one fortunate occasion.

October 22d, 1855.—the usual mode of relief, by passing a small instrument *into*, not through, the stricture, having failed us for three days, Mr. Cooper and I recommended puncturing above the pules, having in view, for permanence, the same means of micturition as in the former case. The curved trocar was introduced, and on removing the canula on November 6th (fifteen days), no difficulty was found in passing the same apparatus, with gum-elastic tube. The track was well established either by cicatrix or adhesive effusion sufficiently consolidating the structures the trocar had pierced.

June, 1859.—The plan succeeded perfectly in making him comfortable. He soon acquired freshness of complexion and increased substance, is now to be seen walking erect, and looks at seventy-four a better man than for the last twenty years. No water ever passes his urethra.

CASE 3.—The third case shows that, the canula track healing, the same fortunate circumstance as occurred in Mr. Norman's case, of a valvular opening retaining the contents of the bladder for the use of a catheter will not always be the result. Other peculiarities also in this instance of bladder puncturing seem to make it worthy of being narrated here.

A gentleman about seventy, without previous stricture, suffered retention, which he ascribed to being obliged to delay micturition when much incited to it. His urging and pain were unusually distressing, and I was unable to pass the catheter for him.

A physician, and a man of prompt decision, he insisted on relief by paracentesis vesicæ. I could not persuade him to endure his misery beyond forty-eight hours, and punctured above the pules.

Anticipation, of course, was high that a simple spasm would soon relax, and the power of micturition return. Nearly three weeks, however, elapsed before urine passed, and then a large quantity of red lithic crystals came with the gush. The collection of this in the prostatic part of the urethra, at nearly seventy years of age, was probably the clue to the attack and to its main features, violence of pain and urging, failure of attempt at catheterism, as well as subsequent delay in the resumption of bladder function.

Even now the case was not at an end; for when the canula of the trocar was removed, my patient became miserable from the constant escape of more urine through the artificial opening than was made by the urethra; and after much annoyance for three or four weeks more, during which we waited for obliteration of the canular track, it seemed certain that its cicatrizing was completed, and I was obliged to pass a suture-pin across it, about which, in a figure-of-eight form, a thin strip of lint was wound, as for hare-lip. The newly-formed film of cicatrization was quickly destroyed, the track healed, and my friend was quite well.

Cases of Popliteal Aneurism successfully treated by Flexion of the Knee-joint.

By (1) Mr. FARNER HART, Surgeon to the West London Hospital; and (2) Mr. ALEXANDER SHAW, Surgeon to the Middlesex Hospital. ('Proceedings of the Medical and Chirurgical Society,' April 26th, 1859.)

The plan pursued successfully in the two following cases may be regarded as a valuable addition to the resources of surgery, but it cannot be looked upon as applicable in all cases. Already indeed it seems to have failed in all the other cases in which it has been tried. It has failed in Mr. Shaw's hands in another case in which he tried it, it has failed in three cases in which it was tried by Mr. Birkett in Guy's Hospital, though in these it may be maintained

that the treatment had not a full and fair trial: it has failed in a case in which it was tried by Mr. Moore at the Middlesex Hospital, and finally, it failed, according to Mr. Fergusson, in the hands of one of the house-surgeons of King's College Hospital. This last case occurred three or four years ago, and therefore this house-surgeon, whose name we do not know, must have the credit of having anticipated Mr. Hart. The two successful cases are as follows:

1. *Mr. Hart's Case.*—J. S., æt. 41, consulted Mr. Hart in September, 1858, for popliteal aneurism in the right ham. It was globular, of the size of a small apple, and situated at the lower and outer part of the popliteal space. It had a full beat, and was not very near the surface. Placing the patient on the sofa, and bearing the leg, in order to make a careful examination of the tumor, Mr. Hart found that its pulsation was affected at the angle at which the leg was bent upon the thigh, and that when very complete flexion was effected its thrill almost wholly ceased. Concluding that in this position the course of the blood through the tumor was greatly retarded, he conceived the hope of effecting the cure of the aneurism by the deposition of active clots, if the leg could be retained for a sufficient length of time in the bent position. After a week's preliminary rest, the treatment was commenced by bandaging the leg from the foot to the knee (not covering the tumor), thoroughly flexing the leg on the thigh, and retaining it in that position by the application of a stout roller. He was a thin, wiry man, and the flexion produced no inconvenience to him at the time. He passed a better night than during the previous week, when severe pain had been present in the aneurismal sac. What pain or annoyance was complained of during the treatment was referred to the knee-cap, but it was very trifling, and "barely deserving to be called pain." The tumor was examined on the morning of the third day (about forty hours after flexion was enforced) and considerable solidification had occurred. On the fifth day the tumor was hard and solid, and neither pulsation nor thrill could be detected. The leg was lightly attached to the thigh at a right angle. On the seventh day, the patient was allowed to move about, the foot being slung. On the twelfth day the leg was completely straightened, and the patient walked on it with ease, limping from stiffness at the knee-joint consequent upon confinement. Six weeks subsequently the tumor was hard and firm, and much smaller. After three months it was barely perceptible, and there was pulsation in that part of the artery.

2. *Mr. Sharpe's Case.*—The patient, æt. 39, first perceived a pulsating tumor in the left ham a week before his admission into the Middlesex Hospital. It was of the size of a lemon, occupied the centre of the popliteal space; was easily compressed; the pulsation was strong, and there were other signs of its being a recent aneurism. On December 1st, the knee was secured in the bent position by a band brought round the foot and thigh, and fixed near the hip. The immediate effect of the flexion was, that the patient ceased to feel the beating of the tumor, and that on inserting the oiled finger into the flexure behind the knee no pulsation could be discerned. On the fourth day, when the limb was unbound, the tumor was found to have lost about a third of its original size: its walls were thicker and denser, the force of the pulsation was considerably diminished, and the sac had receded more deeply into the popliteal cavity. Gradual improvement continued to take place. Between the third and fourth week from the commencement of the treatment the sac had become greatly reduced in size, its walls appeared nearly solid, and the pulsation was so faint that it was expected at each day's visit to find it extinct. The treatment was varied by occasionally undoing the strip which confined the knee for several hours together; but, owing to the stiffness caused by the long continuance of the flexion, the position of the joint was not much altered by the relaxation. It was not till the thirty-eighth day that the pulsation in the tumor altogether ceased. The sac was at that time about the size of a walnut. The patient gradually recovered the power of extending the joint. On the fiftieth day he could walk with only a slight halt, and on the fifty-sixth day he was discharged. During the first ten days the patient complained of the pain, as well as the irksomeness, of keeping his knee constantly bent; and for a

slight swelling of the joint a lead lotion was applied. Afterwards he made light of the inconvenience, and he never at any time asked to have the leg relaxed.

On the Contagiousness of Secondary Syphilis. By M. GINERT, and others.
(Comptes Rendus, May 24th and 31st, 1859.)

Medical men have long been divided in opinion upon the contagiousness and non-contagiousness of secondary syphilis. Clinical facts and experimental researches not a few have convinced the majority of the contagiousness of this affection; but these facts and researches have failed to carry conviction to the minds of a large party, of which Ricord is the leader. Of this party the dogma was that no syphilitic affection was contagious unless it was inoculable, and that secondary syphilis was not contagious because it was not inoculable. It is but just to M. Ricord, however, to state that he is not entirely responsible for the most positive rendering of this dogma, and that he himself always maintained a cautious reserve upon the subject. What he held was that the primary chancre was alone inoculable in a person already suffering from syphilis. It is to be remembered, also, that in experimenting upon the contagiousness of secondary syphilis, he had never ventured to inoculate *healthy* individuals, and that he never distinctly asserted that inoculation would give negative results in such cases. Be this as it may, however, M. Ricord has abandoned his doctrine as to the non-contagiousness of constitutional syphilis, and the change in his opinion has been thus brought about.

On the 25th of October, 1858, a letter was addressed to the Imperial Academy of Medicine at Paris, by the Minister of Commerce, Agriculture, and Public Works, requesting an authoritative answer upon two questions: first, whether constitutional syphilis was contagious; and, secondly, whether, as regards contagion, there was a difference between constitutional syphilis as seen in infants at the breast and in adults. This latter led to the appointment of a commission consisting of MM. Velpeau, Ricord, Devergie, Depaul, and Gibert, and these commissioners have reported (and their report has been adopted by the Academy without opposition of any kind) first, that some of the manifestations of secondary syphilis, especially condylomata, are undoubtedly contagious; and, secondly, that there is no reason to suppose that the case is different in infants at the breast and in adults.

The commissioners arrive at this conclusion after examining the clinical facts and experimental researches already on record, and after four experiments of their own, which were undertaken with great reluctance on their part. The persons experimented upon were all suffering from lupus, but free from any syphilitic taint, and these were chosen from the notion that the treatment for syphilis, if the inoculation took effect, might possibly be of service in remedying the lupus. The cases are given in detail, and as the results were very similar in the four, one will serve as an example.

On a man, whose face had been affected with lupus from childhood, a raw surface was made on the left arm by strong ammonia, and to this was applied a piece of lint soaked in purulent matter obtained from a condyloma near the anus of a person who had had a chancre fifteen months previously. The condyloma was of fifteen days' standing. Fourteen days afterwards there was slight redness at the seat of inoculation. Four days later still, a prominent coppery colored papule made its appearance in the same part. On the twenty-second day this papule was much larger, and there was a slight oozing from its surface. During the week following the oozing, after being purulent, dried up into a thin scab. On the twenty-ninth day a gland in the corresponding axilla became enlarged. On the fifty-fifth day, the papule on the arm had become a real tubercle, with some slight ulceration in the centre, and several blotches and coppery papules had made their appearance on the trunk. During the week following, these papules became multiplied on the body, and they spread also to the extremities; many of them also changed into pustules of acne. Two or three days later the patient was put under treatment for syphi-

lis, and in six weeks, at the date of the report, there was still much to be done in the way of a cure.

In addition to asserting the contagiousness of secondary syphilis, the reporters have also arrived at the conclusion that there are characteristic grounds of distinction between the primary and secondary affection, but here M. Ricord is somewhat at issue with his colleagues. The conclusions arrived at, indeed, are similar to those already arrived at—that the period of incubation in the secondary affection is from eighteen to twenty days, or even longer, and that the result is first a papule and then a tubercle, which is finally converted into an ulcer covered with a crust.

Be this as it may, however, the question of the contagiousness of secondary syphilis would seem to be set at rest, for if the evidence in the affirmative had not been thoroughly conclusive, it is certain that M. Ricord would not have read his recantation.

III.

REPORT ON MIDWIFERY.

On Cranioclasm. By Dr. SIMPSON, Professor of Midwifery in the University of Edinburgh. ('Edinburgh Medical Journal,' July, 1859.)

At a recent meeting of the Obstetrical Society of Edinburgh, Dr. Simpson laid before the society some casts and preparations of the heads of infants whose delivery had been effected by means of new variety of craniotomy, which he proposed to call *cranioclasm*. The peculiarity of the new operation was the fracturing of the base of the fetal skull behind the foramen magnum, and at other points, and this Dr. Simpson had found it perfectly possible to effect when a proper pair of forceps were employed, although many high authorities had declared it impossible, under any circumstances, to diminish the size of the base of the cranium. The advantages of the operation were chiefly these: 1st. By breaking up the base of the skull, diminution of the head of the child was produced at its firmest and most unyielding part, and that to such a degree as to render the passage of the head through the contracted maternal canal as easy as the transit of the shoulders or pelvis of the infant. 2d. The necessity of breaking up the vault of the cranium into small pieces and removing the fragments was obviated; and thus at once the practitioner was saved much time and trouble, and the patient was freed from the danger of laceration which attends the removal of the sharp pieces of bone. 3d. As the bones of the fetal head, remaining in their normal relation, could be more easily kept covered and protected by the soft parts, the mother ran less risk of injury during the extraction of the head. And 4th. The extraction of the head was further facilitated by the firm hold which could be obtained with the extracting forceps. The operation was performed by perforating the skull in the usual manner, and afterwards applying a pair of duckbill forceps to the skull—one blade inside the cavity, the other on the surface, so as to grasp the occipital bone close up to the foramen magnum, where, by a slightly twisting movement, the bone was fractured. By applying the forceps deeply in the same manner, over the bones at the sides and front of the skull, fracture of the basis could likewise be produced at those points. The forceps hitherto employed in this operation was a craniotomy forceps with serrated blades; and all that was required was, that they should be free at the joint, of such a curve as to admit of their easy adaptation to the head, and with the inner surface of the outer blade strongly beveled or hollowed, so as to enable the smaller and convex inner blade to sink into it, and thus take a very firm hold of the included portion of the cranium. As a matter of convenience, the joint should be made moveable, and yet firmly fitting, so as to act like a scissor-joint. The operation had now been performed in three cases, all of which were illustrated in the casts and preparations before the society. 1st. There were two casts of the head of the first child that had been delivered in this manner. One of the casts represented the head in its collapsed condition; the other was taken from the same head after it had been stuffed out and restored nearly to its normal dimensions; and on comparing the two, it would be seen that the head had been diminished to the extent of about two inches in all its longest diameters. 2d. There was a preparation of the second child that had been delivered in the manner described; and in this case the operation had been performed in the lying-in-hospital by Dr. Keiller in Dr. Simpson's presence. By handling the head, the members of the society could feel to what an extent the base of the skull had here been broken down.

3d. There were two casts of the skull of a third foetus which had been delivered by cranioclastism—one showing it crushed and edrapsed, the other showing it in its natural form and size. A preparation of the skull of this foetus was also laid before the society, which could be easily seen to be fractured at the base in several places, viz., behind the foramen magnum, between the frontal and sphenoid bones, and between the temporal bones and the basilar process of the occiput.

Is the usual treatment of Post-partum Hemorrhage correct? By Dr. LYALL, of Newberg. (*Edinburgh Medical Journal*, July, 1859.)

"Amid the thousand and one expedients for the arrest of post-partum uterine hemorrhage, there are," says Dr. Lyall, "a few of universal acceptance—taught in the schools, prescribed in didactic works, and employed in all emergencies demanding special interference. These seem to constitute a portion of the broad, beaten tract of the obstetric course, from which no one may think for a moment of turning aside, or even of entertaining a doubt that he walks in the right way. It will readily suggest itself to the mind of every one, that I here allude to the mechanical irritation of the uterus to induce it to contract, and the removal of clots from its interior, so as to get it to contract upon itself. In this practice was I instructed, and in this faith for many years practised; and the instruction and practice are, in a great measure, now what they were when I was a pupil, thirty years ago.

"Let us take a case, and go over the ordinary mode of procedure. After the removal of the placenta, which, perhaps, has been somewhat tedious, the uterus contracts at longer intervals and more feebly than usual; at each contraction a quantity of blood is thrown out; the uterus is grasped through the external walls of the abdomen, and urged, by frictions and pinchings, to contract and expel its contents, which are now found gradually to increase; these means failing, and the woman getting more and more prostrate, cold water is dashed over the belly, the hand introduced within the cavity of the uterus, and clots removed. Brandy and opium are prescribed: still the uterus fails to contract so as to prevent hemorrhage, sinking continues till, pulseless and exsanguined, the woman dies. This consummation I have never witnessed, and trust I never may; but all preceding the final issue has been to me a matter of experience; the grievous discomfort of the patient lying in a splash of cold water, and the scarcely less grievous anxiety of the attendant watching and waiting on.

"Such is the usual course of a fatal case of post-partum hemorrhage, and the most common means employed in its treatment; the chief objects in view being to get the uterus to contract upon itself, so as to arrest the vital flow. Many other means out of the thousand and one to which I have alluded are, no doubt, often used—galvanism, squeezing a lemon within the cavity of the uterus, blowing up a catheter or common bladder within it, &c., one or other of which has preceded a recovery—'post hoc ergo propter hoc' the staple proceeding the savants. The indication of cure is, no doubt, a right indication, as the contraction of the uterus is the means employed by nature to arrest the hemorrhage loss; and it is usually because nature fails in the performance of this natural act, that we are called on to interfere. But do we act aright in the mode of our interference? If the uterus act feebly, and fail to contract favorably, so as to stop up the uterine vessels, will we aid its feeble powers by excessive stimulation or irritation? We know that the stimulation of other organs in a weakened or feeble condition may soon exhaust, but cannot invigorate them; and why may the uterus be an exception to the ordinary physiological rule? Moreover, are we right in removing the clot from the interior of the organ? The uterus has been powerful enough by its contractions on the child to expel it; and will it now contract more powerfully on nothing than on a contained clot? All muscular fibres, we know, by contraction lose power—that is, the more they are shortened by action, the less power they have to continue shortening by continued action; and why may the uterus be an exception to the ordinary rule. These questions, and questions such as these, I put to myself, but failed to answer them favorably to the ordinary practice; and thus it came

about that my mode of procedure changed. I do not feel anxious although the uterus contain a clot, and have long ceased to vex the organ by external and internal manipulation. Is this or the usual practice right?

"If we consider the ordinary and natural mode of arrest of hæmorrhage, we find that the blood coagulates within and around the mouths of the bleeding vessels and that this coagulation is promoted by the sickness and fainting induced by the loss of blood; the very loss of blood, in fact, is a chief means employed by nature in arresting its further flow. In epistaxis, for instance, the bleeding nostril gets plugged up with a clot, which in time restrains the farther flow; and in ordinary wounds, unless an arterial trunk of considerable size be injured, the same thing takes place. In epistaxis, we do not sedulously remove the clot, but rather aid its formation by plugging the nostrils, and diminish, if need be, the *vis a tergo* by venesection, and thus imitate Nature in her conservative efforts to check the hæmorrhage. Why our practice in uterine hæmorrhage should be different I cannot see. The organ, having failed to secure its own vessels by its customary contraction, adopts the mode of coagulation to effect the same purpose; and we, forsooth, wiser than Nature, would compel her back again into her forsaken course, and say to the uterus—You shall cease to bleed by contraction, and contraction alone; a conglumum is not to be formed, or, if formed, must be removed; but removed at last once for all, the organ and its possessor fail in the contest, and cease to strive for ever. While thus condemning the 'middle-aged midwifery' of intra and extra-uterine manipulation for the arrest of uterine hæmorrhage, in which the very lifeblood of the patient is squeezed out of her by these ill-considered efforts, the casualty is, by no means one for non-interference; something must be done, and that quickly, but let it be in accordance with the principles and the rules of art. When, in surgery, we fail to reach and ligature a bleeding vessel, our next resource is pressure; and as we cannot tie the vessels of the uterus, pressure is our chief and remaining stay. At the risk of apparent egotism, I shall go over the mode of procedure I usually adopt, both for the prevention and arrest of uterine hæmorrhage. As soon as the placenta is withdrawn, I place the patient on her back, put her hand over the uterus, and cause her to keep it there until I have drawn a bolster-slip or similar bandage underneath her: feeling for the uterus, I lay it over a folded flannel pad, or other large compress, and fix it in its place with the circular roller as tightly as it can be well drawn; a very considerable pressure is thus applied to the uterus from the first, as the compress should be sufficiently large to make the antero-posterior equal at least to the lateral diameter. If hæmorrhage do take place, the bandage is still further tightened, and the compress enlarged; and if there be escape to any extent of blood per vaginam, then the long bandage is also applied. The patient is kept supine and motionless, so as to promote coagulation and repress cardiac action. I permit no shifting of clothes, or indeed anything demanding motion or likely to excite arterial activity; as pressure and quiet I conceive to be quite adequate to prevent a fatal issue in uterine hæmorrhage, if properly and timously applied.

On Vesico-vaginal Fistula: illustrating a new mode of operation. By J. BAKER BROWN, Esq., F.R.C.S. ('Lancet,' 10th Dec., 1859.)

Mr. Brown's name is inseparably connected with the cure of vesico-vaginal fistula. No surgeon in this country has had so wide an experience, or such ample success, for, including the cases now related, Mr. Brown has placed upon record twenty-six cases in which this distressing lesion has been completely cured. In the present paper seven new cases are related, a new mode of opening is described, and the latest views of the author upon different points connected with the operation are given. Of the cases we need say but little. In the first case two operations were required, in the second, four, in the third, three, in the fourth, fifth, and seventh, one. The case ending in death was of a very unfavorable character, the age fifty-six, the fistula of very large size, the injury existing for upwards of twenty years, the health in an unsatisfactory condition. A good deal of blood was lost during the operation, death resulted

from exhaustion a fortnight later, and, after death, the parts operated upon were found to be in an unhealthy condition, and inclined to slough. About the new mode of operating, and about his last views upon different points connected with the operation (to both of which we wish to direct especial attention), we leave Mr. Brown to speak for himself.

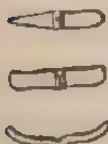
I. *Of the position of the patient during the operation.*—"Three positions have been recommended: on the hands and knees, as advised by Dr. Bozeman; in the semi-prone position, as suggested by Simms; in the lithotomy position, as recommended by myself. I am still of opinion that this latter position is the best, both for the patient whilst under the influence of chloroform, and for the surgeon, who can sit down quietly before the patient, during the operation: whereas on the hands and knees the patient cannot take chloroform, and the surgeon must stand in a very awkward posture during a long and tedious operation, which becomes exceedingly fatiguing. Of the semi-prone position I have had no experience, nor have I yet seen the necessity for its adoption. It must still be recollected that, whilst advocating the lithotomy position, there will be found some cases where, from peculiarity of the position of the lesion or of the female organs themselves, it may be advisable not to administer chloroform, and where the opening can be better seen and reached on the hands and knees than in the lithotomy position."

II. *The modes of operating.*—"Four classes or modes may be mentioned: (a) by simple suture, as recommended by Heyward; (b) by metallic sutures, as practised by Gossett in 1834, and more fully placed before the profession by

Fig. 1.



Fig. 2.



Simms, of New York; (c) metallic sutures guarded by clamps, as recommended by Simms, or by button, as suggested by Bozeman; (d) a plan which I now desire to recommend, namely, metallic sutures with a separate bar clamp to each suture. The suture may be either of silver wire or galvanized iron wire, as prepared by Cocker Brothers, of Sheffield, under the direction and suggestions of my friend, Dr. Aveling. The first three plans have been fully elaborated by the gentlemen whom I have mentioned, and do not require any further observations here; I will therefore only dwell, and that briefly, on the fourth plan.

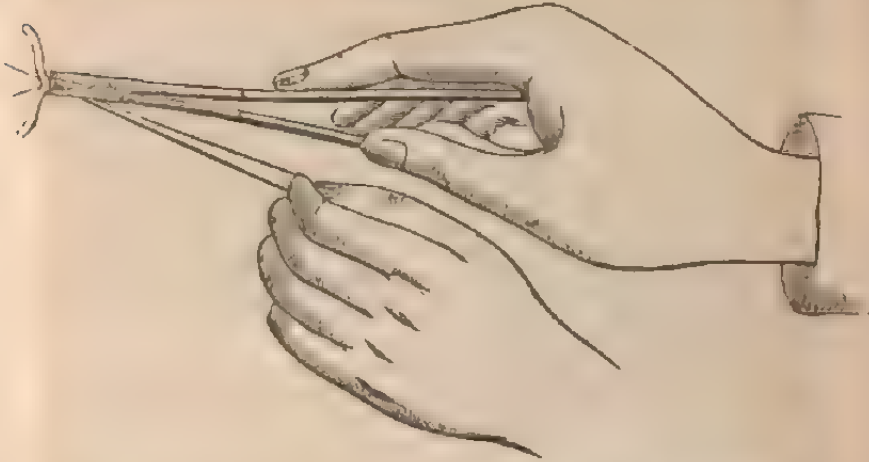
"Having placed the patient in the lithotomy position, I commence paring the edges of the opening, using for this purpose the three knives represented in fig. 1. As there has been some misapprehension about my claim as the originator of these knives, I may here state that they were designed by myself without communication with any person whatever, and publicly used and recommended long before my friend, Dr. Bozeman, came to this country. During one of the many discussions he and I had upon plastic surgery, I showed him these knives, as affording great facilities for denuding the edges of the fistula; when he, in his own quiet manner, opened his instrument-case, and took out three knives, precisely similar to mine, which were made in Montgomery (U.S.) under his own design, and under his own immediate eye. It will be thus seen that we both

felt the necessity for, and had made the same kind of instruments, without communication with each other.

"The edges being pared, I now pass the needle as practised by Simpson, and then through it either the silver or galvanized iron suture. Having thus passed as many sutures as may be necessary, I take the two ends of the first suture, and pass them through the eyelet-hole of the simple bar clamp (fig. 2), which it will be seen, is slightly curved, and with a nipple projecting from its

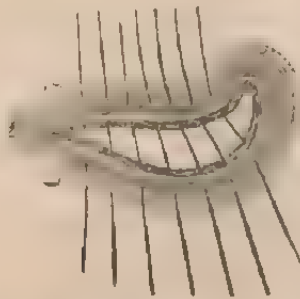
back. I then hold the two ends of the wire with my left hand, and seizing the nipple of the clamp with a pair of long forceps, pass it back until I see that the

Fig. 3.



edges of the fistula are in perfect contact. I then firmly squeeze the nipple (fig. 3). This has the effect of partially straightening the clamp and securing the wires (fig. 4). Each suture is treated in same way, until all are closed.

Fig. 4.



"The advantages of this plan are manifold:

"1. Its celerity as compared with others.

"2. The certainty that the edges are in perfect apposition all along the fistula.

"3. That, however irregular the opening, you can follow its tortuosity without the slightest difficulty.

"Should the opening be very large, the edges are kept perfectly together, whilst the vagina is not stretched out, as it would be under a large button. Each suture is also well guarded by the clamp, and there is no trouble in removing them. Simply the anterior side of each suture is cut, under the clamp, and then this, being seized by a pair of forceps, and slight traction being made upon it, is easily withdrawn.

"By this mode of operating, I have succeeded in completing the operation, in slight cases, within a quarter of an hour; and within three quarters of an hour

in the worst cases. Formerly, such cases took two or three hours; and I have heard Bozeman and Simpson say even a much longer time."

III. *The causes of the lesion.*—"I here repeat that, in almost every case, this lesion has taken place from very protracted labor; and I cannot too strongly urge upon the profession to abolish the practice of waiting days and nights with the head pressing upon the bladder and soft parts generally."

IV. *Causes of failure after the operation.*—"It may arise from not carefully denuding the edges; from not introducing the needle deep enough through the tissues; from not being sufficiently careful in bringing together the edges of the fistula; from neglect in the position of the patient afterwards (this position should be upon the side); from neglecting to keep the bladder empty, either by the catheter being left in the bladder, or by its very frequent use. Occasionally the general health may be so much impaired as to predispose the patient to pyæmia, or to prevent healthy plastic matter being thrown out sufficiently soon to ensure union. It is necessary, therefore, to attend to the general health of the patient before operating. Another not unfrequent cause of failure arises from a certain indurated condition of the parts, which is induced by frequent operations, especially cauterization. The parts become almost cartilaginous, and are unable to throw out plastic matter. Such a case has come under my notice, when three fistula existed; two of these were easily cured, but the third has defied all attempts at present from this cause."

V. *The after-treatment.*—"On the free use of opium and generous diet, and strict attention to the bladder, depends the success of the operation, however well performed in the first instance."

IV.

REPORT ON PHYSIOLOGY.

On a new function of the Placenta. By M. CLAUDE BERNARD. ('*Journal de Physiologie*,' No. 5, 1859.)

IN this paper M. Bernard wishes to show that the placenta and amnios possess a glycogenic function, which compensates for the absence of this function in the liver during the first months of uterine life. This function he believes to be exercised by glandular or epithelial cells of a transitory character, which cells are either dispersed through the vascular portion of the placenta, or else (as in the ruminants) arranged separately in epithelium-like patches upon the amnios. These cells, which are illustrated by drawings, abound in the earliest periods of foetal life, and for some time they go on increasing in size and number. At first they are transparent; afterwards they become opaque, particularly near their borders; and often numbers of them together will give the appearance of a patch of lichen. In form they are infinitely varied—filiform, filiform, fused together in various ways, or else separate. The glucogenic matter is easily recognized at all times, by the microscopic and by the iodine test. It may also be obtained in quantity, and in an isolated form. In water it dissolves, forming a milky solution, and from this solution it is precipitated by alcohol or acetic acid. Iodine gives with it an intense redwine-like color, which disappears on heating, and reappears on cooling. Even while in the cells iodine acts in this manner. And like the analogous matter obtained from the liver, it readily changes into dextrine and into fermentible sugar, under the action of yeast, or when boiled with strong acids. In a word, the glucogenic matter of the placenta and amnios is in every particular like the glucogenic matter of the liver.

M. Bernard has further noticed, that the glycogenic cells of the placenta and amnios continue to increase until the liver begins to give signs of the exercise of its glucogenic function, and that from this time they begin to fall away, becoming yellow as they do this, or else exhibiting signs of fatty degeneration.

It is certainly not a little curious, as M. Bernard points out, to see around the embryo of animals a shadow of that accumulation of amyloid matter which is so conspicuous a phenomenon around the embryo of plants.

On Glycogene as a condition of the development of certain foetal tissues before the appearance of the Glycogenic function of the Liver. By Dr. CLAUDE BERNARD. ('*Journal de Physiologie*,' April, 1854.)

In the paper noticed in the previous article, Professor Claude Bernard attempts to show that the placenta and amnios exercise a glycogenic function before this function is transferred to its sole permanent location in the liver. In the present paper he goes a step further, and points out that several embryonic tissues have a share in the function which he thought at first to belong exclusively to the placenta and amnios. The glycogene in all these cases is absolutely the same as that which is obtained from the liver. The fetuses were furnished by calves, rabbits, pigs, dogs, cats, &c. A few human fetuses were also experimented on.

In all these cases Professor Claude Bernard found glycogene infiltrated in the skin and in the cells of epithelium covering the skin: in horns, hoofs, claws: in the mucous covering of the mouth, tongue, pharynx, stomach, small intestine, and in several portions of the large intestine; and also in the mucous

covering of the respiratory and genito-urinary passages. He also found it, though in a somewhat modified form, in the muscles. On the other hand, except in the epithelium of the ducts, he failed to find it in the kidneys, pancreas, salivary glands, lymphatic glands, liver, or any other form of glandular structure. He also failed to find it in nervous and osseous textures. In all these cases where the glycogene was found the embryo was very young. At a later period, as the glycogene became localized in the liver it disappeared from other parts, until at the time of birth there was scarcely a trace anywhere but in the liver.

In a note, however, Professor Bernard admits that there are two structures which, even in the adult, may, under certain circumstances, be infiltrated with glycogenous matter. These are the muscles and the lungs. This is particularly the case in hibernating animals during hibernation, when also the liver is particularly loaded with the same matter. In this case the glycogene disappears, except from the liver, when the animal wakes and begins to breathe more actively and move about. Glycogene may also be detected in the muscles of many animals if they are kept in a state of forced quiet, but not when they are allowed to move about. And for the same reason, it occurs in considerable quantity in the muscles of a limb which has been paralyzed by dividing its nerve.

Professor Bernard does not seem to think that these facts invalidate his views respecting the glycogenic function of the liver, but he offers no very clear comment respecting them. He merely hints that in the animal embryo, as in the vegetable embryo, saccharine and amylaceous substances would seem to play an important part in the process of early development.

On Amyloid Substances as component parts of Animal Bodies, and on their uses. By Dr. CHARLES ROUGET. ('Journal de Physiologie,' Nos. 5 and 6, 1859.)

According to Dr. Rouget, amylaceous substances are as much a necessary element in the animal economy as protein compounds and fatty bodies. Amylaceous substances, in different conditions, are common in some of those rudimentary forms of animal life which skirt the confines of the vegetable world. They are common in the tissues of the higher animals while in an embryonic condition. They are met with not only in the liver and in the placenta and amnios, but also in the epithelium of the uterus, vagina, and tongue. In all these cases the red-wine like reaction with iodine is precisely the same as that which is furnished by the glycogenic cells of the liver, placenta, and amnios. According to Dr. Rouget, sugar, instead of being a special secretion of the liver, or of the placenta and amnios before the liver can act, must take rank with urea, creatinine, creatine, &c., as a product of natural waste—a product of the natural waste of the amylaceous element of the organic fabric; or rather it must be looked upon as a result of the waste of a depraved organism, and be placed by the side of uric acid, lactic acid, inosite, &c.

These papers of Dr. Rouget are of considerable importance, and we entirely sympathize in their spirit. There is, no doubt, an inseparable connection between the animal and vegetable kingdom, and it is not at all likely that amylaceous substances, which play so important a part in the vegetable economy, have nothing to do in animal organisms, and this the more seeing that these substances, in cases of animals having a mixed diet, form so large a portion of everyday food. We sympathize, also, with the view which would refer sugar to a disordered natural metamorphosis of the amylaceous constituents of the body, rather than to a secretive action in certain hepatic or placental cells. At the same time we must admit that as yet the facts are not altogether conclusive.

On the origin of Sugar in the Animal Economy.
By M. SANSON, ('Journ. de Physiologie,' Jan., 1859.)

M. Sanson considers that one principal reason for the partial failure of his experiments before the Commission of the Academy of Science at Paris

(c. 'Abstract,' XXIX, p. 334). is to be found in the fact that these experiments were made upon butcher's meat, in which the animal had been killed by loss of blood. His original experiments were made upon the flesh of animals dying of disease, killed by dividing the medulla oblongata, &c.—upon flesh, that is to say, from which the blood had not been drained away: and on repeating the experiments with flesh of this kind the results, he tells us, are precisely the same. Now, as M. Sanson holds that the dextrine is to be met with chiefly in the blood, we are quite disposed to agree with him in thinking that it was scarcely fair to test the correctness of his views by experiments upon the flesh of animals from which the blood had been carefully extracted.

Preservation of the faculty of Singing in a person otherwise demented.

By Dr. MITCHELL. ('North American Medico-Chirurgical Review,' May, 1858.)

On the 27th of January, 1858, Dr. Mitchell exhibited before the Pathological Society of Philadelphia, a specimen of chronic inflammation and softening of the gray matter of the cerebral convolutions in a child thirteen years of age.

The subject from which this specimen was taken was one of fifteen children, born within a period of sixteen years—the mother having twice had twins.

J. D.—, when five years of age, was a handsome, intelligent child. At this time he began to see dimly, and at last became entirely blind, from what was believed to be amaurosis. When nearly blind, he began to show a loss of power to fix his attention, and at length, within six years, became completely idiotic. One year ago he was attacked with epileptic fits, which succeeded one another at less and less intervals, until they destroyed his life. Paralysis of the left side, and violent convulsions of the right side, preceded his dissolution. During his idiocy he retained the power of singing, and sang several songs very well, even a few days before he died. He also retained the ability to learn new music, although he mumbled the accompanying words, and evidently attached to them no definite meaning. All other mental effort seemed impossible. His temper was peevish and sullen, and a more pitiable object can scarcely be conceived of.

On post-mortem dissection, the following appearances were observed: Head well developed; body and limbs thin; large ulcer (bed-sore) on the sacrum. On opening the head, adhesions existed along the line of the great longitudinal sinus, closely glueing the membranes together; the deposits were of comparatively recent origin. A large amount of serum was found within the membranes, and the brain, compressed and shrunken, did not fill the cranium. With this exception, the upper surface of the organ was healthy, although the membranes were more than usually vascular. Below the middle line of the brain, and principally in the middle and posterior cerebral lobes, were many spots where the surface was a little flattened. On cutting into these, the knife passed through a layer of gray cerebral matter, which adhered to the membranes, and then entered a cavity whose walls were ill defined. This cavity was thus bounded on all sides by gray matter, and followed the irregular curves of the convolutions. It contained altered blood-discs, brain-cells, fragments of nerve-tubercles, nuclei, compound granular masses, cholesterol-plates, and quantities of granular matter, with occasional fragments of pigment. On careful inspection, the external gray matter of the cerebral convolutions offered, nearly everywhere, some stage of the process whose completed results we have just described. The first stage seemed to be a red line of inflammation just within the external limits of the vascular neurine. In the later periods of change, this appearance was lost in the complete destruction of tissue which followed. No cause was found to account for the early amaurosis, and an examination of the retina was denied. The child died, therefore, from chronic peripheral encephalitis with extensive serous effusion.

On the influence of the Nervous System on Nutrition. By Dr. E. BROWN-SÉQUARD and Dr. CHARCOT. ('Journal de Physiologie,' January, 1859.)

M. Brown-Séquard points out in this paper the different effects arising from the compression or division of a nerve, or of a nervous centre like the spinal

cord, and from these differences he argues that the nervous system is capable of exerting a marked influence upon nutrition. After complete division of a nerve the only effect is wasting, often slow wasting, of the paralyzed parts. In some cases, it is true, where a limb has been paralyzed by division of its nerve, there has been inflammation, ulceration, or gangrene of the foot; but these effects Dr. Brown-Séquard shows to be due, not, as Dr. Schroeder van der Kolk supposes, to the absence of innervation, but simply to the prolonged traction of the insensible part against the hard ground. This is evident, for all these injuries may be prevented by wrapping up the paralyzed part in cotton-wool or hay. When, on the other hand, a nerve is compressed, the effects are very different. To show this, a case is cited from Mr. Paget's able work on 'Surgical Pathology.' This case is that of a man, under Mr. Hilton's care in Guy's Hospital, whose median nerve was compressed by the callus which had been formed for the repair of a fracture at the inferior extremity of his radius, and who was tormented by obstinate ulcers upon the thumb and the two adjoining fingers. These ulcers resisted all modes of treatment, until it occurred to Mr. Hilton to relieve the nerve from the pressure of the callus by flexing the wrist, and then they healed rapidly. What the end of the case was is not stated, but we are told that the ulcers returned when the nerve became subjected to the old pressure, in consequence of the man beginning to use his hand. Another case mentioned by the author is that of a farmer, under the care of Dr. Charles Rouget, who had received a gun-shot wound in the inner side of the left arm. The great vessels and nerves were exposed and considerably injured, but the wound healed without any difficulty. Two months later an eruption of an herpetic character made its appearance on a part of the forearm, which had been deprived of sensibility by the injury which its nerves had received in the upper arm at the time of the accident, and this eruption was strictly limited to this part.

The difference between the effects of irritation and cessation of nervous action on the part of the spinal cord, Dr. Brown-Séquard thinks, is illustrated in many cases of disease as well as in experiments upon the lower animals; and arguing from the latter, the probability is that there is a far greater disposition to ulceration, gangrene, &c., in parts which are left in connection with a compressed or irritated cord, than in parts from which the influence of the cord has been completely cut off.

The cases related by Dr. Charcot are further instances of the disturbances of nutrition resulting from irritation of the nerves going to the part.

CASE 1.—R. C., æt. 42, No. 24, Salle St. Benjamin, Hôpital de la Pitié, of strong constitution, and previously enjoying good health. In 1852 he had a phlegmonous abscess on the dorsal aspect of the left forearm, for which several free incisions were found to be necessary. A short time afterwards he was sensible of loss of power in this arm, particularly in the hand. At the same time there were tingling, pricking, and dulled sensibility in the same parts, with occasional sharp pangs of a neuralgic character which seemed to spring from the cicatrix. A few months later, sensibility had completely disappeared, the atrophy in the hand and forearm were much more marked, the fingers were contracted, and an eruption like pemphigus had made its appearance on the dorsal aspect of the hand and fingers. This eruption appeared without any inflammatory or painful symptoms, the bullæ had no areolæ and the ulcers to which they led had generally healed in from fifteen to twenty days. As the eruption subsided in one part it rose in another, and the usual means of treatment have little or no influence over its course. In all other respects the patient is in good health.

CASE 2.—A man, æt. 43, Salle St. Charles, Hôpital Laborisnière, July, 1857: his malady being very obstinate sciatica of the left thigh. This was the second seizure, the first being about a year ago. Fifteen or twenty days after the present seizure, the skin of the lower part of the affected thigh became covered with groups of confluent herpes, and there appeared to be much reason to connect the eruption and the pain with irritation of the nerve. The eruption, however, disappeared several weeks before the pain.

CASE 3.—A man, a patient of Dr. Rayer, wounded in the Revolution of

June, 1840, by a musket-ball, in the inferior and posterior part of the right thigh. The wound healed without difficulty, but some time afterwards pains of a violent character made their appearance in the neighborhood—pains shooting also to the leg and foot. Accompanying the pains, also, were frequent eruptions of an herpetic character in the most painful parts. The pains and the eruption were alike uninfluenced by treatment.

On Vascular Dilatation under Nervous Action. By Professor CLAUDE BERNARD. ('Journal de Physiologie,' No. 4, Oct., 1858.)

In Professor Bernard's investigations on the changes in the color of venous blood, a fact has been brought to light which at first sight would seem to show that it may be the office of some nerves to produce a *dilated state* of the blood-vessels. In a former volume (XXVII., p. 323) we have seen that venous blood proceeding from a glandular organ undergoes certain remarkable changes in color during secretion. During rest, the color is quite dark; during secretion, if the process be carried on briskly, the color may be indistinguishable from that of arterial blood. We have seen, also, that with respect to blood proceeding from muscle, the case is quite different, the dark color being rendered perceptibly darker during muscular action. In investigating the causes of these remarkable changes in color, the experiments of M. Bernard were performed for the most part upon the submaxillary glands of dogs, and it is these experiments which have led to the discovery of the fact to which we wish to direct attention.

The submaxillary gland is supplied with nerves from two distinct sources. It is supplied by a twig from the lingual nerve. It is supplied also by nerves from the grand sympathetic—chiefly from the superior cervical ganglion—which nerves accompany the arteries of the gland. These nerves are quite distinct, they may be acted upon separately, and the results of their action are strangely dissimilar. If, the twig from the lingual remaining intact, the nerves of the sympathetic system be divided, the venous blood proceeding from the gland loses its dark color and becomes permanently red; if, on the other hand, the sympathetic nerves being let alone, the twig from the lingual be divided, the blood in the veins becomes permanently black. Corresponding changes, moreover, are produced by simple irritation without any previous division of the nerves, the blood for the time becoming red if the twig of the lingual be irritated, and black if the sympathetic filaments be so treated. Or if both classes of nerves be divided at the same time, the same results may be produced by irritating in turn the ends of the nerves in connection with the gland.

These changes in the color of the blood are to be explained, according to M. Bernard, by the different action of the nerves upon the vessels of the submaxillary gland. The action of the sympathetic nerve is to produce contraction, and diminish the stream of blood in the vessels—a change which allows more time for the performance of those reactions which issue in the discoloration of the red arterial blood. Hence the venous blood proceeding from the submaxillary gland is black when the sympathetic nerves of the gland are irritated. The opposite effects produced by irritating the twig of the lingual are not so easily explained. At first, M. Bernard was disposed to think that this irritation resulted in active *dilatation* of the vessels of the gland, and that in this way the arterial blood was able to get through the capillaries into the veins without losing its proper arterial color—the blood, that is to say, escaping those reactions in the capillaries which destroy the arterial redness. A later explanation is that the action of the twig of the lingual is not upon the muscular coats of the vessels, but upon the sympathetic nerves belonging to these coats—the idea being that the action of the lingual is to suspend the action of the sympathetic, and so paralyze the vascular coats. In this case, therefore, the increased capacity of the vessels is produced, not by the active dilatation of their coats, but by the opposite state of passive relaxation. Be the explanation what it may, however, there is no doubt that the effect of irritating the twig of the lingual is to produce dilatation in the vessels of the submaxillary

gland: for this is seen not only in the redness of the blood which finds its way into the veins, but also in the fact that there is a distinct arterial pulse in these veins, and that the blood escapes in jets if a vein be wounded at this time.

Some facts showing that the Iris moves under the direct action of light upon its proper tissues. By Dr. E. BROWN-SEQUARD. ('Journal de Physiologie,' April, 1859.)

The experiments referred to in this paper were made during the winter of 1846, upon the eyes of eels and red frogs. In one experiment, the eyes were removed from the animal and set aside for three or four days—until, indeed, the retina had obviously begun to pass into a state of decomposition. Then, while in this state, the iris was exposed to the sun, or to the light of a candle, as the case might be. The result was marked contraction of the pupil. In another experiment, the posterior half of the eyeball was removed, and the anterior half, containing the iris, alone subjected to the action of light. The result was still the same—the iris contracting when the rays of light fell upon it. In the third experiment, a ray of light, passed through a small hole in a piece of metal or card-board, was directed first through the pupil upon the retina without touching the iris; and secondly, upon the iris directly. The result was now more marked than before, for while contraction was still produced when the light was directed upon the iris, no contraction was produced when the light was directed through the pupil upon the retina without touching the iris.

On the rhythmic movements of the Diaphragm and other muscles of Animal Life after their separation from the Nervous Centres. By Dr. E. BROWN-SEQUARD. ('Journal de Physiologie,' January, 1859.)

In 1848 Dr. Brown-Séquard ascertained that there are rhythmic movements in the muscles of the chest, trunk, limbs, face, &c., after they have been cut off from the cerebro-spinal centres by the division of their nerves. These movements are most marked in the diaphragm, where indeed they are in every respect comparable to the movements in the auricles and ventricles of the heart. They affect the entire diaphragm and the individual fibres of the organ, for so long ago as in 1842 and 1844 Remak and Valentin had seen rhythmic movement in microscopic portions of muscle taken from the diaphragm of a rabbit, pig, and cat. Usually the rhythm of the diaphragm corresponds to that of the thoracic respiratory muscles.

The rhythmic movements of the muscles of a limb are seen most easily in connection with the phenomena of asphyxia. Paralyze one of the limbs by dividing its nerve, then suffocate the animal by putting a ligature on its wind-pipe, and presently the whole animal, with the exception of the paralyzed limb, is seized with convulsion. In three or four minutes these convulsions are at an end, and all that is noticed is a little trembling in the non-paralyzed parts. All this while the paralyzed limb has exhibited neither convulsion nor tremor; then, when the rest of the muscular system is comparatively or entirely still, the paralyzed limb becomes the seat of various movements, more or less marked, more or less general; and if these movements are examined carefully, many of them are seen to be of a regular rhythmic character. Dr. Brown-Séquard thinks that some of the post-mortem contractions of cholera, yellow fever, &c., are of this character.

The rhythmic movements of the muscles of the face may be seen on the side on which the facial nerve has been divided or plucked out. They continue for a varying time, and, as a rule, they are greatly exaggerated by any interruption of the respiratory movements.

Reflecting on these facts, and on others of a like nature, Dr. E. Brown-Séquard thinks, very properly, that we ought not to seek the cause of the rhythmic movement of the heart in the heart specially, but in some law affecting all muscles alike, and he believes that the carbonic acid of the venous blood

will be found to be the special exciting cause of these movements whenever they occur.

Curious case of Rhythmical Contraction in a Voluntary Muscle. By M. JOBERT (DE LANDELLE). ('Gaz. Héb. de Méd. et Chir.,' No. 17, 1859.)

The muscle affected in this case was the peroneus brevis on the right side. On a level with the malleolus, and at its posterior border, a regular pulsation could be felt, accompanied by a momentary lifting up of the soft parts, and followed by a dry sound at the close of each muscular contraction. This sound could be heard at some distance, and equally whether the patient was standing or lying, awake or asleep. The sound was produced, apparently, by the falling back of the displaced tendon into its bony channel, the displacement having been previously occasioned by the contraction of the muscle. M. Jobert says, that by a little practice any one may acquire the power of making comparatively loud noises by flicking the tendon of the peroneus brevis in and out of its groove, and he suggests that noises thus made would be for some persons "spiritual knockings." In the patient in question, it may be added, the affected muscle had been the seat of these rhythmical contractions for six years.

On the Reparative Process in Human Tendons after subcutaneous division. By W. ADAMS, Esq., Surgeon to the Royal Orthopædic Hospital. ('Proc. of the R. Med. and Chir. Society,' June 25, 1859.)

At the meeting of the Royal Medical and Chirurgical Society, at which this paper was read, specimens of reunited tendons, after division, were exhibited from ten cases, and also drawings, made by Ford, of the recent appearances in thirteen cases, at periods between four days and three years after the operations. These specimens had been collected by Mr. Adams during the last eight years, and were principally from patients operated upon at the Royal Orthopædic Hospital; but, for two specimens, he was indebted to Mr. Erichsen and Mr. Curling.

After alluding to our at present scanty information on this subject, and describing the recent appearances in fifteen cases, the author gives a general summary of the reparative process, describing—

- 1st. The immediate results of the operation.
- 2d. The commencement and nature of the reparative process.
- 3d. The general appearance and structure of the newly formed connective tissue, or new tendon;
- 4th. The junction of the new with the old tendon.

This is followed by an account of the circumstances which may interfere with the perfection of the reparative process, or entirely prevent it, so that non-union of the divided tendon may result. Complete failure of union had been witnessed by the author only in the posterior tibial tendon; but appeared that there is considerable risk of such an occurrence whenever tendons are divided in, or near to, dense tubular sheaths. It is shown that imperfect union might result either from some constitutional defect in the reparative powers of the patient, or from injudicious after-treatment in a variety of ways, but principally from too early and too rapid mechanical extension.

The conclusions which the author considers are established by the above series of cases, are arranged under nine different heads. It is stated that tendon is one of the few structures of the body capable of reproduction or regeneration, and that the newly formed tissue acquires within a few months of its formation the structural characters of the old tendon so perfectly, that, under the microscope, it is with difficulty distinguished from it, but it does not acquire through its substance the uniformly opaque pearly lustre of old tendon; in the mass it retains a grayish translucent appearance, so that the recent section affords an easy method of distinguishing the new from the old tendon. The greatest length of perfectly formed new tendon which the author has seen was two inches and a quarter, and this was in the tendo Achillis of an adult a year and a half after it had been divided by Mr. Curling.

That the process by which new tendon is formed is essentially similar in animals and man.

That the perfection of the reparative process is in direct proportion to the absence of extravasated blood, and inflammatory exudation: and that the sheath of the tendons, when consisting of loose-textured areolar tissue, as in the tendo Achillis, and other tendons surrounded by soft tissue, is of importance—1st, in preserving a connection between the divided extremities of the tendon; 2dly, in furnishing the matrix in which the nucleated blastemous, or proper reparative material, is effused: and 3dly, in giving definition and form to the newly developed tendinous tissue.

That the new tendon always remains as a permanent tissue, and as an integral portion of the tendon, the divided extremities of which it has been formed to re-unite. In the specimen exhibited, in which Mr. Adams had divided the tendo Achillis three years previous to death, an inch and a quarter of new tendon was clearly traceable. The average length of new tendon formed in children to re-unite the divided extremities of the tendo Achillis, Mr. Adams considers to be from half an inch to an inch; and in adults from one to two inches.

The author considers that the facts adduced in this paper are amply sufficient to disprove the *linear-cicatrix theory*—the theory at present in vogue and supported by all his colleagues—which assumes that the newly formed tendinous structure has a disposition to undergo a process of gradual contraction, such as we see taking place in the cicatrices of the skin after burns, to which it has been compared; and that ultimately it becomes absorbed: the muscular structure at the same time becoming elongated by the force of the contraction of the cicatrix, so as to allow of the re-approximation of the ends of the divided tendon, and the formation of a *linear-cicatrix*.

From the present observations it appears, that in the cure of deformities, muscles are elongated by the increased length of their tendons, obtained by means of subcutaneous division, and the development of new tendon formed for the purpose of re-uniting the divided extremities of the old tendon.

The mechanical and physiological effects of this increased length of the tendons are described; and lastly, the author states, that when re-contraction of the foot takes place, and the deformity returns at a distant period after tenotomy, this does not depend upon absorption of the new material, or new tendinous tissue formed previously to unite the divided extremities of the old tendon, but upon structural alterations taking place in the muscular tissue. In three cases of relapsed deformity of the foot examined by the author, the new tendinous tissue formed after the previous operations remained, and could be easily distinguished from the old tendon. These facts are regarded as additional evidence against the *linear-cicatrix theory*.

On the Fetus Utero as inoculating the Mother with the peculiarities of the Father.
By Dr. ALEXANDER HARVEY, late Physician to the Aberdeen Royal Infirmary.
(*Glasgow Medical Journal*, January, 1850.)

Dr. Harvey's object in this paper is to show that secondary or constitutional syphilis may be transmitted through the fetus from the father to the mother, and in order to this he advances many valuable considerations of a pathological character. His argument rests, however, chiefly upon certain physiological facts which are not sufficiently remembered, and to which we are glad to call attention.

The general fact on which Dr. Harvey rests his theory of inoculation is this—that the peculiarities of a male animal that has once had fruitful intercourse with a female, of the class *mammalia*, may be more or less clearly discernible in the progeny which that female may subsequently have by other males; or, in other words, that a male animal that has once had intercourse with a mammalian female may so influence her future offspring begotten by other males, as, in a greater or less extent, to engraft upon them his own distinctive features and his constitutional qualities: his influence thus reaching to the subsequent progeny, in whose conception he himself has had no share, and his

image and superscription, so to speak, being more or less legibly inscribed upon them. Accordingly, if the female be of a *different* breed or species from that male, and have borne a cross or hybrid by him, her future offspring, got by males of the *same* breed and species with herself, may yet have more or less the characters of a cross or hybrid.

"This general fact," writes Dr. Harvey, "was not unknown to the great Haller. It was known even to Becker, who lived long before Haller; both those writers stating, that when a mare has had a mule by an ass, and afterwards a foal by a horse, the foal exhibits traces of the ass."

"It was not, however, till the publication in the 'Philosophical Transactions' for the year 1821, of the cases of Lord Morton's mare, and of Mr. Giles' sow, that the subject attracted any particular attention. A young chestnut mare, seven-eighths Arabian, was covered in 1815 by a quagga—a species of wild ass from Africa, and marked somewhat after the manner of the zebra. The mare was covered but once by the quagga, and, after a pregnancy of eleven months and four days, gave birth to a hybrid, which took strongly after the quagga. Subsequently, in 1817, 1818, and 1821, this mare was served by a very fine black Arabian horse, and produced successively three foals, all of which bore unequivocal marks of the quagga; the first, however, in a higher degree than the third. Again, a sow, of the black and white breed (known as Mr. Westorn's breed), became pregnant by a boar of the wild breed, of a deep chestnut color. The pigs produced were duly mixed, the color of the boar being in some of them very prominent. The sow being afterwards put to a boar of the same breed as her own, some of the produce were observed to be stained or marked with the chestnut color that prevailed in the former litter. And on a subsequent occasion, the boar being still of the same breed as the sow, some of the litter were also slightly marked with the chestnut color. What adds to the value of the fact now stated is, that, in the course of many years' observation, the breed in question was *never* known to produce progeny having the slightest tinge of the chestnut color.

"These two cases were long looked upon as solitary examples of an exceptional phenomenon, for the reference made by Haller and Becker to a precisely analogous case had come to be forgotten; and the phenomenon exemplified by them was long regarded as scarcely, if at all, admitting of a plausible explanation. By some, however, it was suggested that it might be ascribed to a partial fecundation by the quagga and chestnut boar, respectively, of others of the mare's and sow's ova than those actually impregnated by them; or at least to some influence of their seminal fluid on the ova that remained, of a permanent kind, but strictly *local* in its agency, and modifying in some way the development of these ova, when afterwards impregnated by other males. By others, again, the phenomenon was regarded as an instance of that class which come within the category of 'mothers' marks,' and are popularly ascribed to the agency of the imagination or of the mind on the body, and supposed to be illustrated by a reference to the case recorded in Genesis (chap. xxx.), of Jacob and his peeled rods. Neither the phenomenon itself, however, nor these conjectures regarding it, gave rise to much discussion, or long continued to engage the attention of physiologists.

Meanwhile, instances of a like kind were becoming known to persons engaged in the breeding of horses, cattle, sheep, dogs, and swine; and in 1849 Mr. McIlhenny adduced, in the paper I have referred to, a collection of cases sufficiently large to show, that the phenomenon exemplified in Lord Morton's mare, or rather in her progeny, is by no means so unique as it was thought to be. And it may now be confidently affirmed, that since then, and within these few years, enough has transpired in this department of inquiry to warrant the presumption, that the phenomena in question is so uniform in its occurrence, whenever the requisite conditions obtain, as to constitute a general fact or law of nature. It is so regarded by a large number of our great breeders of cattle, by dog-fanciers, and others of large experience in the rearing of horses, sheep, &c., and is habitually taken into account by them in the selection of their breeding-stock, and in their estimate of the purity of an animal's blood; the *practical* belief of all of them on this subject being, that a female animal that

has once been impregnated by a male of a different breed or species from her own, and has borne a cross or a hybrid by him, is thereby *destroyed*, for a time at least, if not permanently, for the purposes of breeding pure stock of her own kind: and the *theoretical* belief of many among them, that this result happens because (as was first suggested by Mr. McGillivray) the blood of the female has, through the fetus, been *contaminated* by the blood, and charged with the qualities of the male she first had intercourse with—so charged therewith, so contaminated thereby, that she herself imparts the blood and the qualities of this male to the progeny she afterwards has by other males.

"It is not my intention to lay before you any additional examples of this kind as occurring in the lower animals. I have elsewhere brought together a tolerably large collection, and to this it must suffice to refer. But I cannot forbear just briefly alluding to the fact, for the mention of which you will be quite prepared, and the reference to which will naturally pave the way to our proper subject—that instances of the like sort are, perhaps, equally common in our own species. It has long been known—and it is, in fact, a popular observation—that, in the case of a woman twice married, and fruitful by both husbands, the children of the second marriage often resemble their mother's first husband or his family, and that not in features only, but in mind also, and in disposition. It is obvious, indeed, that in any such case, where all the individuals concerned—the woman, her children, and both the husbands—are of the *same* variety of the human family, the alleged resemblance must often be exceedingly difficult to trace or to substantiate. But it is equally obvious, that means exist for ascertaining clearly whether it obtains or not. There are equally distinct varieties of the human species as there are of any of the lower animals: and all that is requisite for bringing the question to a decisive issue is, to observe accurately whether the children of European parents when the mother has, in the first instance, had offspring by a negro—exhibit traces of the latter in the color of the skin, and still more in the quality of the hair, the form of the features, &c.: or, contrariwise, whether the children of negro parents, when the mother had formerly been impregnated by a European, manifest the peculiarities of the latter.

"Of the former case, I have heard of two instances as occurring in this country, one of them under the notice of Professor Simpson, of Edinburgh. A young woman, born of white parents, but whose mother had some time before her marriage had a bastard child (a mulatto) by a negro man-servant in Edinburgh, presented distinct traces of the negro. Of the latter case, that in which the parents are both negroes, but in which the mother has previously had fruitful connection with a European, Dr. Robert Balfour, of Surinam, wrote me some years ago to say, that repeated instances of the European influence under such circumstances, had come under his own observation.* Doubtless, if looked for, examples of the influence now in question would be found as general in our own species as in the lower animals. And it may just be observed that, in the one as in the other, they can only be unequivocally and satisfactorily determined in cases where the individuals or the animals that are the subjects of observation are of a different race or species; or rather, where the male, the female, and the offspring, are of the same breed and species, but the female has first of all been impregnated by a male of a different breed or species."

On Sympathy between the Testis and the Ovaries. By Dr. M. PROSSER JAMES, of Braintree. (*Med. Times and Gazette*, 3d September, 1859.)

In the course of his practice, Dr. James has met with several cases of tonsillitis, accompanied by ovarian suffering, and he thinks that many similar cases may have been overlooked in consequence of the attention being too exclu-

* "Among the colored population" (Dr Balfour writes me, April 18, 1851), "consisting of negroes and their offspring by Europeans, the most striking illustrations of the truth of your or Mr. McGillivray's theory are constantly occurring. Shortly after my settlement here, I was led to remark the circumstance (which I had never noticed recorded by writers) that if a negroes had a child or children by a white, and afterwards fruitful intercourse with a negro, the latter offspring had generally a lighter color than the parents. I could particularize many such, the observation of which had led me to form an opinion similar to that which you have more elaborately worked out."

sively occupied by the throat-symptoms. And this is certainly not at all improbable, for the ovarian pain often extends into the lumbar region, and coalesces, so to speak, with the "back-ache" of the pyrexia incident to the tonsillitis. A more searching scrutiny, Dr. James thinks, would elicit the fact, previously unmentioned through female modesty, that pain in the inguinal region was as distressing as pain in the back, perhaps more so. One case is given in illustration, and this is as follows:

Case.—On the evening of February 22d I was requested to prescribe for a single young lady, 22 years of age, of sanguine temperament and robust health, who, through imprudent exposure to damp, was reported to have caught a severe cold. On the 21st she was quite well, but yesterday was seized with rigor, followed by intense headache, sneezing, and some coryza. To-day, therefore, may date as the second day of the disease, and she now feels quite unable to remain up from excessive lassitude, headache, and pain in the back and limbs; in fact, she declares she "aches all over." She is thirsty, her skin hot and dry, pulse 90, tongue coated, fauces injected, and bowels rather confined. I prescribed a diaphoretic anodyne, to be followed by a saline aperient in the morning.

3d day.—The medicine procured some sleep, but she feels no better. Headache somewhat relieved, but is still confused; throat seems dry and sore, and voice somewhat hoarse. On inspection, the whole fauces are much injected, and the tonsils swollen. Pain in the back and limbs exceedingly distressing; thirst and heat of the skin continue; pulse 95; the tongue remains coated; bowels open once since the draught.

Towards evening she got worse, the fever being considerably increased, and she is very nervous and excited. The catamenia appeared to-day—one day before she expected—and were attended with great pain; never suffered such pain with a period before. Several doses of a saline diaphoretic have been given during the day.

4th day.—Tonsils swollen to a great extent, and tender to the touch, but no indication that an abscess has formed. Several minute superficial ulcers on the anterior part of the left tonsil were touched with nitrate of silver. She can swallow nothing but a little cold water.

5th day.—The nitrate was freely applied to the left tonsil, on which two specks remained visible. Respiration more impeded; pulse 100. Tongue more thickly coated with dirty white fur; bowels open once. An attempt to swallow a little thin arrowroot gave much pain, and some returned through the nose. A few grains of nitrate of potass mixed with sugar, to be put on the tongue in fine powder, at intervals of three or four hours, so as to dissolve slowly, and come in contact with the throat.

6th day.—All specks have disappeared during the night, and the left tonsil seems somewhat less; at any rate, the right is by far the larger. Has had no sleep, and is very excited and anxious. Respiration much impeded; pulse 120 and weaker; has taken no food; tongue getting brown; bowels not open. Catamenia are passing off, but there is a fixed, dull, aching pain in the right ovarian region, aggravated on motion. This was discovered from her dread of moving, on account of the pain in the back, which, on careful questioning, she said seemed to "come right through" to the groin, and when she moved almost made her sick. She lay a little inclined to the left side, with the right leg so drawn up as to take off pressure. On examination the pain is found localized to the ovarian region, which is hot and tender; very gentle, but prolonged manipulation detected a somewhat oval swelling in which the pain was seated. Slight percussion in this spot was intolerable; but at a short distance could easily be borne, and detected a loaded state of the bowel.

The right tonsil (the larger and on the same side as the affected ovary) was freely scarified; and swallowing being so painful, a powder of calomel and morphia was placed on the tongue, and a black draught advised to be taken as early as she feels able. In the meantime poppy fomentations to the groin.

7th day.—Better. The scarified tonsil much less, so that the draught was taken with less difficulty. The bowels have been thrice freely relieved; but the operation of the medicines the first time greatly increased the ovarian pain,

which then amounted to agony. This I attributed to the contact of hardened feces with the ovary. The pain and tenderness are now much diminished. She is much calmer; pulse 100; respiration easier; tongue covered with thin white fur; urine depositing sediment; has taken some arrowroot and jelly.

8th day.—The right tonsil continues decreasing, but the left has as rapidly enlarged. The ovarian pain is also gone, but only to reappear in exactly the same form on the opposite side. She is more excited, has lost her little appetite again, her throat feels more sore, is intensely thirsty, with a burning hot skin; has severe pain in the back, continuing into the left groin, and occasionally down the thigh; feels sick; tongue coated and brown; pulse 130 and weak; "has been wandering a little." Cold water and ices were gratefully taken. Free scarification of the left tonsil; a brisk purge, and warm flannels to the groin were employed with the same benefit as before. In the evening she expressed herself much better, and wanted to have the scarification repeated. She was far more composed, but still apprehensive and low-spirited. Had taken, by persuasion, a little beef-tea. The bowels being quite free, a full dose of morphia was ordered.

9th day.—Slept nearly four hours. Disinclined to swallow anything from the extreme soreness of the throat; but having no repugnance to food, was persuaded to take some beef-tea. The tonsils are exceedingly tender, superficially, as if from the scarification, but are much less. The ovarian pain continues, but is duller in character. Respiration easy; pulse 100; tongue cleaner; a saline aperient to be followed by an opiate; hop pillows to the groin.

10th day.—Better altogether; more cheerful; tongue clean; urine depositing sediment; pulse 95; complains of pain in shoulder; a dose of calomel and Dover's powder prescribed.

11th day.—During the night the ovarian pain became suddenly worse, and she was nauseated, and at the worst vomited. Still feels sick; pulse 95; weaker; effervescing draughts, with one minim of dilute prussic acid in each, to be given at intervals of two or three hours.

12th day.—Much better in every respect; the sickness has left; the throat feels less sore; the pain in the groin is duller; she got up to-day.

From this time she gradually improved; the pain in the groin soon disappeared; and the tonsils slowly diminished under iodide of potassium, tonics, generous diet, and change of air.

A Reptile living without food for twenty-eight months. By Dr. RIDDELL. ("New Orleans Med. and Surg. Journ.," Jan., 1858; and "Journ. de Physiologie," Jan., 1859.)

The reptile here referred to was an *Amphiuma Tridactylum*, weighing from four to five pounds, and measuring about three feet. It was kept in a narrow jar partially filled with the muddy water of the Mississippi, which water was changed occasionally, and for twenty-eight months it was left entirely without food. At the end of this time the animal is said to have been very active, but unfortunately no note was taken of its condition as to weight. Dr. Riddell says that he has known of rattle-snakes living eighteen months without food.

Post-mortem appearances in the Body of an Executed Criminal. By Dr. H. G. CLARK, of Boston. ("Transactions of Boston Society for Medical Improvement;" and "Edinburgh Medical Journal," August, 1859.)

The prisoner, Magee, was a healthy and very muscular man, but of small stature, and weighing about 130 pounds. *Æt.* 28. He was executed in the rotunda of the jail, at ten o'clock, June 25th, 1858. He was dropped a distance of from seven to eight feet. There was not the least perceptible struggle or convulsion, but the urine was passed immediately. At the end of seven minutes, all the sounds of the heart was distinctly audible, and the number of beats 100 in the minute. At nine minutes the number was 98. At the end of twelve minutes, the number was 60 and the pulsations fainter. At fourteen minutes the sounds had ceased.

The body was lowered at twenty-five minutes past ten, at which time a careful

examination of the chest revealed no perceptible sound or impulse of the heart. A small space under the left ear seemed to have escaped active compression, so that some circulation might have been continued through the carotid and jugular of that side.

The face was purple, and the pupils dilated, but there was no protrusion either of the eyes or tongue. The cord had taken just above the thyroid cartilage, and had left a deep oblique wale or indentation along its whole course, excepting at the part before mentioned; the knot, which was over the mastoid, having lifted it off from this point.

At 10:40 the cord, and the straps with which he had been pinioned were removed. After this, the body, the face especially, became gradually paler.

At a few minutes past eleven, Dr. Ellis commenced the autopsy, at the House of Reception. The body was pale, and the skin mottled. A small ecchymosis was noticed just above the line of the cord on the right side. The right sternocleidomuscle was ruptured through one half of its thickness. No lesion was discovered in any of the other soft parts of the neck. The os hyoides was somewhat broken, but the spine was entirely uninjured. Dr. Shaw examined the clothing, to determine the presence of semen, but none was found.

At 11:30, a slight but regular pulsatory movement was observed in the right subclavian vein. Upon applying the ear to the chest, this was ascertained to proceed from the heart itself, which gave a distinct and regular single beat, with a slight impulse, 80 times in a minute. The chest was then opened, and the heart exposed, without in any way arresting the pulsatory movements. The right auricle was in full and regular motion, contracting and dilating with beautiful distinctness and energy. At twelve o'clock, the spinal cord having been previously divided, the number of contractions was 40 per minute, having continued, with only a short intermission, regularly up to this time. Dr. Ellis furnishes the notes of his own and Mr. Towers' minutes after this hour.

"The peculiar movements of the anterior wall of the right auricle gradually but occasionally recurred, either spontaneously or excited by a passing current of air, until 1:45 o'clock. They could at any moment be excited by the point of the scalpel. Dr. Ellis being obliged to leave at this time, the remainder of the record concerning the heart was furnished by Mr. Tower, one of the medical house pupils of the hospital. It is as follows:

"At 1:45 the movements still continued without stimulus. Five were noticed in a minute, with corresponding intervals. At 2:45 all automatic movements ceased, but the part still responded to the stimulus of the knife. At 3:10, deep irritation of the same kind was followed by slight movements. The irritability was most marked at the lower part, where the venae cavae enter the auricle. At 3:18 all movements ceased. On opening the heart, it was found to be perfectly normal. The left ventricle was contracted; the right, not. No coagula were found."

Brain healthy.

Both lungs collapsed completely, and were in every respect normal.

The liver and spleen were darker colored than usual, owing to the presence of an unusual amount of blood.

The stomach contained a whitish pulp, like softened bread. The mucous membrane had a pinkish tinge, particularly in the neighborhood of the pylorus. In the large extremity, for some distance below the cardiac orifice, were numerous whitish glandulae, about a line in diameter.

The upper part of the small intestine contained much green, bilious fluid. The mucous membrane was of a pinkish color. Peyer's patches were very distinct. No lacteals were seen.

The other organs were examined and found healthy.

Dr. Jackson asked if any motion of the intestines was observed, to which Dr. Ellis replied in the negative. Dr. J. alluded to the case of a tumor removed from the shoulder, some fibres of muscle attached to which contracted under the stimulus of the knife, some time after its removal. He then alluded to the muscular contractions which were manifest after death in many cases of cholera, during the epidemic of 1833.

The absence of cerebral congestion Dr. Gay thought probably due to the ad-

justment of the rope, which allowed circulation in the left carotid. He thought death might have been owing to the sudden shock.

Dr. Clark alluded to the three modes in which death takes place by hanging—viz., apoplexy, asphyxia, and fracture of the spine, and attributed death in the present instance to asphyxia.

Dr. Ainsworth remarked that all the appearances usually observed in cases of hanging were here wanting, and thought that the first effect of the sudden fall was a powerful concussion of the brain, which paralyzed the body—as in cases where a blow or fall is received upon the extremity of the sacrum—and that death occurred afterwards from strangulation.

Dr. H. Bigelow considered the motions of the heart to be solely due to local irritability.

Dr. Coale, in this connection, alluded to the unfortunate incident in the life of the celebrated Vesalius, in consequence of which he was banished from his country and died in exile. Not allowing a sufficient time to elapse after the death of his patient before proceeding to the examination, the muscular irritability remaining in the body caused a movement in the heart, which led to his arrest and punishment for murder and impiety.

Dr. Clark expressed the opinion that, as there was no lesion of any important organ, resuscitation might possibly have been accomplished by artificial respiration, &c., if efforts to that end had been made immediately upon the lowering of the body from the scaffold—that is, within half an hour after he fell. Strong shocks of electricity or galvanism would, in cases of apparent death, destroy the little remaining vitality: and if these agents are used at all, they should be administered with great care.

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